

1 Delta Plan Recirculated Draft PEIR
2 Compilation of Mitigation Measures
3 (including refinements planned for FEIR)

4 (ADMINISTRATIVE STAFF DRAFT AS OF MARCH 18, 2013)
5

Contents

2	Section	Page
3	Section 3 Water Resources	1
4	Section 4 Biological Resources.....	3
5	Section 5 Delta Flood Risk	7
6	Section 6 Land Use and Planning	13
7	Section 7 Agriculture and Forestry Resources.....	15
8	Section 8 Visual Resources.....	19
9	Section 9 Air Quality	21
10	Section 10 Cultural Resources	25
11	Section 11 Geology and Soils	31
12	Section 12 Paleontological Resources	37
13	Section 13 Mineral Resources	39
14	Section 14 Hazards and Hazardous Materials.....	41
15	Section 15 Noise	45
16	Section 16 Population and Housing	49
17	Section 17 Public Services.....	51
18	Section 18 Recreation	53
19	Section 19 Transportation, Traffic, and Circulation	57
20	Section 20 Utilities and Service Systems.....	63
21	Section 21 Climate Change and Greenhouse Gas Emissions	65
22		

Section 3

Water Resources

3.4.3.6.1 Mitigation Measure 3-1

The following mitigation measures would reduce the effects of Impact 3-1a through 3-1e:

- ◆ For construction of new facilities, all typical construction mitigation measures shall be required. Typical mitigation measures include the following construction-related BMPs:
 - Gravel bags, silt fences, etc., shall be placed along the edge of all work areas in order to contain particulates prior to contact with receiving waters.
 - All concrete washing and spoils dumping shall occur in a designated location.
 - Construction stockpiles shall be covered in order to prevent blowoff or runoff during weather events.
 - Severe weather event erosion control materials and devices shall be stored onsite for use as needed.
 - Soil stabilization, sediment control, wind erosion control, tracking control, non-storm water management, and waste management/materials pollution control
- ◆ Other BMPs as determined necessary by the regulating entity (city, county).
- ◆ Any new facility with introduced impervious surfaces shall include stormwater control measures that are consistent with the RWQCB NPDES municipal stormwater runoff requirements. The stormwater control measures shall be designed and implemented to reduce the discharge of stormwater pollutants to the maximum extent practical. Stormwater controls such as bioretention facilities, flow-through planters, detention basins, vegetative swales, covering pollutant sources, oil/water separators, and retention ponds shall be designed to control stormwater quality to the maximum extent practical.
- ◆ Mitigate sediment contaminant bioavailability impacts through (a) the exclusion of bird use or nesting areas from areas that may have excessive selenium or mercury; (b) minimization of methylmercury production; and/or (c) maximization of contaminant degradation before discharge of water, as appropriate.

For any construction activities with the potential to cause in-river sediment disturbance associated with construction:

- ◆ Apply BMPs to avoid or reduce temporary increases in suspended sediment. These BMPs for in-channel construction and levee disturbance may include, but are not limited to, silt curtains, cofferdams, the use of environmental dredges, erosion control on all inward levee slopes, and various levee-stabilization techniques, including revegetation. All construction sites will include preparation of a Storm Water Pollution Prevention Plan and BMPs designed to capture spills and prevent erosion to the waterbody. Turbidity shall be monitored up- and downstream of construction sites as a measure of impact.
- ◆ Apply bank stabilization BMPs, as needed, for any in-channel disturbance, such as:
 - A 100-foot vegetative or engineered buffer shall be maintained between the construction zone and surface water body.

- Native and annual grasses or other vegetative cover shall be established on construction sites immediately upon completion of work causing disturbance, to reduce the potential for erosion close to a waterway or water body.

Dredging would be particularly prone to the production of re-suspended sediment and contaminants, but potential impacts could be reduced, but not necessarily fully mitigated, through the use of submerged dredge cutter heads, silt curtains, and cofferdams, depending upon the site-specific soil conditions within the channel.

This mitigation measure will likely reduce the water quality impact to a less than significant level. However, as discussed above, with regard to actions taken by other agencies on the basis of the Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Council. For these reasons, sediment- and erosion-related water quality impacts would remain significant.

3.4.3.6.2 Mitigation Measure 3-2

Although in many cases Impacts 3-2a through 3-2e, Substantially Deplete Groundwater Supplies or Interfere Substantially with Groundwater Recharge, are likely to be less than significant, the following mitigation measures are recommended to ensure that impacts do not exceed that level:

- ♦ Prior to construction, a survey should be made of all wells located adjacent to the construction site to determine location and depths of the wells and the groundwater surface. During construction of any project that requires dewatering of groundwater, monitoring wells should be installed adjacent to the groundwater dewatering wells or pumps. If the adjacent groundwater declines in a manner that would adversely affect adjacent wells following implementation of dewatering, the dewatering operations should be halted until the following measures are implemented:
 - Install sheet piles to reduce the area influenced by shallow groundwater level declines.
 - In case sheet piles are not an option and domestic well yields are affected, water supplies shall be trucked in to satisfy the well user's water supply needs.
 - If sheet piles are not effective and the impact on the well yield is important, such that the trucking in of water is not economically feasible, the affected well shall be deepened. Another option for a well that is deep enough would be to lower the pump bowl such that deepened water can be pumped out of the well. If these two options are not feasible, a new, deeper, replacement well shall be installed for groundwater production.

This mitigation measure will likely reduce the construction-related groundwater level impact to a less than significant level. However, as discussed above, with regard to actions taken by other agencies on the basis of the Revised Project recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Delta Stewardship Council. For these reasons, construction-related groundwater level impacts would remain **significant**.

Section 4

Biological Resources

4.4.3.6.1 Mitigation Measure 4-1

The following mitigation measures would reduce the effects of Impact 4-1a through e, Substantial Adverse Effects on Sensitive Natural Communities, Including Wetlands and Riparian Habitat:

- ◆ Avoid, minimize, and compensate for reduction in area and/or habitat quality of sensitive natural communities, including wetlands, by doing the following:
 - Selecting project site(s) that would avoid sensitive natural communities, including jurisdictional wetlands and other waters, vernal pools, alkali seasonal wetlands, riparian habitats, and inland dune scrub.
 - Designing, to the maximum extent practicable, project elements to avoid effects on sensitive natural communities.
 - Replacing, restoring, or enhancing on a “no net loss” basis (in accordance with USACE and SWRCB requirements), wetlands and other waters of the United States and waters of the State that would be removed, lost, and/or degraded.
 - Where impacts to sensitive natural communities other than waters of the United States or State are unavoidable, compensating for impacts by restoring and/or preserving in-kind sensitive natural communities on-site, or off-site at a nearby site, or by purchasing in-kind restoration or preservation credits from a mitigation bank that services the project site and that is approved by the appropriate agencies , in consultation with applicable regulatory agencies (at ratios that offset temporal loss of habitat value).
- ◆ Implement advanced mitigation planning for ecosystem restoration prior to construction.
- ◆ Implement construction best management practices, including:
 - Developing and implementing a Stormwater Pollution Prevention Plan (SWPPP).
 - Minimizing soil disturbance, erosion, and sediment runoff from project site.
 - Avoiding and minimizing contaminant spills.
 - Minimizing visual and noise disturbance from construction activities.
 - Conducting biological construction monitoring to ensure that implemented BMPs are effective.
- ◆ Restore areas temporarily affected by construction activities, including:
 - Preparing restoration plan for temporary impacts sites for review by resource agencies.
 - Minimizing soil disturbance and stockpiling topsoil for later use in any areas to be graded.
 - Decompacting or amending soil if necessary before planting and use native species for revegetation.
 - Restoring natural communities with similar or improved function from communities that were affected.

- ◆ If a project may result in conversion of oak woodlands, as identified in section 21083.4 of the Public Resources Code, one or more of the following mitigation measures shall be implemented:
 - Conserve oak woodlands, through the use of conservation easements.
 - Plant an appropriate number of trees, including maintaining plantings and replacing dead or diseased trees.
 - Contribute funds to the Oak Woodlands Conservation Fund, as established under subdivision (a) of section 1363 of the Fish and Game Code.
- ◆ An invasive species management plan shall be developed and implemented for any project whose construction or operation could lead to introduction or facilitation of invasive species establishment. The plan shall ensure that invasive plant species and populations are kept below preconstruction abundance and distribution levels. The plan shall be based on the best available science and developed in consultation with DFG and local experts, such as the University of California Extension, county agricultural commissioners, representatives of County Weed Management Areas (WMA), California Invasive Plant Council, and California Department of Food and Agriculture. The invasive species management plan will include the following elements:
 - Nonnative species eradication methods (if eradication is feasible)
 - Nonnative species management methods
 - Early detection methods
 - Notification requirements
 - Best management practices for preconstruction, construction, and post construction periods
 - Monitoring, remedial actions and reporting requirements
 - Provisions for updating the target species list over the lifetime of the project as new invasive species become potential threats to the integrity of the local ecosystems

4.4.3.6.2 Mitigation Measure 4-2

The following mitigation measures would reduce the effects of Impact 4-2a through e, Substantial Adverse Effects on Special-status Species:

- ◆ Select project site(s) that would avoid habitats of special-status species (which may include foraging, sheltering, migration and rearing habitat in addition to breeding or spawning habitat), and to the maximum extent practicable, (re)design project elements to avoid effects on such species.
- ◆ Schedule construction to avoid special-status species' breeding, spawning, or migration locations during the seasons or active periods that these activities occur.
- ◆ Conduct preconstruction surveys (by a qualified biologist) for special-status species in accordance with USFWS, NMFS and DFG survey methodologies and appropriate timing to determine presence and locations of any special-status species and their habitat, and avoid, minimize, or compensate for impacts to special-status species in coordination with DFG and USFWS or NMFS.

- ◆ Establish buffers around special-status species habitats to exclude effects of construction activities. The size of the buffer shall be in accordance with USFWS and DFG protocols for the applicable special-status species. If nest tree removal is necessary, remove the tree only after the nest is no longer active, as determined by a qualified biologist.
- ◆ Conduct construction monitoring (by qualified biologist) to ensure effectiveness of avoidance and minimization measures and implement remedial measures if necessary.
- ◆ When appropriate, relocate special-status plant and animal species or their habitats from project sites following USFWS, NMFS, and DFG protocols (e.g., for special-status plant species or elderberry shrubs).
- ◆ Where impacts to special-status species are unavoidable, compensate for impacts by restoring or preserving in-kind suitable habitat on-site, or off-site, or by purchasing restoration or preservation credits (in compliance with CESA and ESA) for affected State- or federally-listed species from a mitigation bank that serves the project site and that is approved by the appropriate agencies, in consultation with the appropriate regulatory agencies (at ratios that offset the temporary loss of habitat value).

4.4.3.6.3 Mitigation Measure 4-3

The following mitigation measures would reduce the effects of Impact 4-3a through e, Substantial Adverse Effects on Fish or Wildlife Species Habitat:

- ◆ Select project site(s) that would avoid a substantial reduction in fish and wildlife species habitat.
- ◆ To the maximum extent practicable, design project elements to avoid effects that would lead to a substantial loss of fish and wildlife habitat.
- ◆ Replace, restore, or enhance habitats for fish and wildlife species that would be lost.
- ◆ Where substantial loss of habitat for fish and wildlife species is unavoidable, compensate for impacts by preserving in-kind habitat.

4.4.3.6.4 Mitigation Measure 4-4

The following mitigation measures would reduce the effects of Impact 4-4a through e, Interfere Substantially with the Movement of Any Native Resident or Migratory Fish or Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors:

- ◆ Protect habitat for migratory waterfowl and shorebirds by expanding existing wildlife refuges and management areas, and establishing new ones in or near wetland areas used by migratory waterfowl and shorebirds. Manage these areas by establishing suitable vegetation, hydrology and other habitat components to optimize the use by migratory waterfowl and shorebirds.
- ◆ Protect, restore and enhance connectivity of habitats, including but not limited to wetland and riparian habitats that function as migration corridors for wildlife species (similar to how has been implemented through programs such as the California Essential Habitat Connectivity Project). Acquire areas with potential to increase connectivity between existing habitats, protect these areas in perpetuity through the acquisition of conservation easements, deed restrictions, or similar tools, and restore the habitat for wildlife species in these areas. Habitat restoration might be accomplished by establishing suitable hydrology or other physical conditions for desirable vegetation, planting desirable vegetation, fencing and managing grazing, and other means.

- ◆ Protect migratory pathways for migratory aquatic species such as salmon, steelhead, and sturgeon including those that use Delta tributaries and floodplain habitats by screening new diversions, and screening existing diversions and removing existing migration barriers if the specific proposed project/activity (e.g., increased intake volume through an existing unscreened diversion, new diversion, new barrier, new barrier near an existing unscreened diversion, etc.) exacerbates the negative effect on migratory aquatic species caused by the existing barrier or unscreened diversion.
- ◆ Avoid or minimize alteration of flow patterns and water quality effects that could disrupt migratory cues for migratory aquatic species by implementing water management measures and establishing programs to reduce water pollution.

4.4.3.6.5 Mitigation Measure 4-5

The following mitigation measure would reduce the effects of Impact 4-5a through e, Conflict with Any Local Policies or Ordinances Protecting Biological Resources or the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Protection Plan:

- ◆ Prior to construction, evaluate impacts to trees or other biological resources protected by local policies and ordinances, and abide by any permit requirements associated with these policies and ordinances.

Section 5

Delta Flood Risk

5.4.3.6.1 Mitigation Measure 5-1

The following mitigation measures would reduce the effects of Impacts 5-1a through 5-1e, Substantially Alter the Existing Drainage Pattern of the Site or Area, Including Through the Alteration of the Course of a Stream or River, or Substantially Increase the Rate or Amount of Surface Runoff in a Manner Which Would Result in Flooding On- or Offsite:

- ◆ Prepare a drainage or hydrology and hydraulic study that would assess the need and provide a basis for the design of drainage-related mitigations, such as new onsite drainage systems or new cross drainage facilities. Prepare the study in accordance with applicable standards of Federal Emergency Management Agency (FEMA), USACE, DWR, Central Valley Flood Protection Board (CVFPB), as well as the local reclamation districts and flood control agencies and the counties and cities. Design subsequent mitigation measures in accordance with the final study and with the applicable standards of FEMA, USACE, DWR, and CVFPB. The study would identify potential increases in flood risks, including those that may result from new facilities.
- ◆ Provide temporary drainage bypass facilities that would reroute drainage around, along, or over the Proposed Project facilities and construction sites. The temporary bypass facilities would be designed in accordance with the results and recommendations of a drainage or hydrologic and hydraulic study and would be in place and fully functional until long-term replacement facilities are completed.
- ◆ Provide onsite stormwater detention storage at construction and project facility sites that would reduce project-caused short- or long-term increases in drainage runoff. The storage space placement and capacity would be designed based on the drainage or hydrologic and hydraulic study.
- ◆ Based on the results of the drainage or hydrologic and hydraulic study, arrange the length of any stockpiles or other construction features in the direction of the floodplain flow to maximize surface flows under flood flow conditions.
- ◆ At in-stream construction sites that might reduce channel capacity, install setback levees or bypass channels to maintain channel capacity and to mitigate hydraulic impacts.
- ◆ Where low channel velocities might result from construction, implement a sediment management program in order to maintain channel capacity.
- ◆ Provide cross drainage, replacement drainage paths and facilities, and enlarged flow paths to reroute drainage around, under, or over the Proposed Project facilities and to restore the function of any affected existing drainage or flow paths and facilities.
- ◆ Channel modifications for restoration actions would be required to be implemented to maintain or improve flood management functions and would be coordinated with the USACE, DWR, CVFPB, and other flood control agencies to assess the desirability and feasibility for channel modifications. To the extent consistent with floodplain land uses and flood control requirements, if applicable, woody riparian vegetation would be allowed to naturally establish.
- ◆ For areas that would be flooded as a result of the project, or where existing flooding would be increased in magnitude, frequency, or duration, purchase a flowage easement and/or property at the fair-market value.

- ◆ Provide a long-term sediment removal program at in-river structures.
- ◆ To mitigate potential impacts of changes in the timing of reservoir releases or the possible combination of river peak flows, use forecasts to implement coordination of operations with existing reservoirs.

These mitigation measures are commonly employed on a variety of construction projects. In many cases, they reduce significant construction-related flood management impacts to less-than-significant levels. Implementation of these mitigation measures would reduce the significance of construction-related and operations-related flood management impacts by completion of site-specific hydrology and hydraulic studies, temporary bypasses, onsite storage, and channel modifications. In some cases it will not be feasible to fully implement the mitigation measures in a manner that completely eliminates flood-management-related impacts due to local hydrology and topography. Moreover, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Council. For these reasons, construction-related and operations-related flood management impacts would remain **significant**.

5.4.3.6.2 Mitigation Measure 5-2

The following mitigation measures would reduce the effects of Impacts 5-2a through 5-2e, Create or Contribute Runoff Water Which Would Exceed the Capacity of Existing or Planned Stormwater Drainage Systems or Provide Substantial Additional Sources of Polluted Runoff:

- ◆ Prepare a drainage or hydrology and hydraulics study that would assess the need and provide a basis for the design of drainage-related mitigations, such as new onsite drainage systems or new cross drainage facilities. Prepare the study in accordance with applicable standards of FEMA, USACE, DWR, CVFPB, as well as the local reclamation districts and flood control agencies and the counties and cities. Design subsequent mitigation measures in accordance with the final study and with the applicable standards of FEMA, USACE, DWR, and CVFPB.
- ◆ Provide onsite stormwater detention storage at construction and project facility sites that would reduce project-caused, short- and long-term increases in drainage runoff. The storage space would be designed based on the drainage or hydrologic and hydraulic study.

These mitigation measures are commonly employed on a variety of construction projects. In many cases, they reduce significant construction-related flood management impacts to less-than-significant levels. Implementation of these mitigation measures would reduce the significance of construction-related and operations-related flood management impacts by site-specific hydrology and hydraulic studies and onsite storage. In some cases it will not be feasible to fully implement the mitigation measures in a manner that completely eliminates flood-management-related impacts due to local hydrology and topography. Moreover, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Council. For these reasons, construction-related and operations-related flood management impacts would remain **significant**.

5.4.3.6.3 Mitigation Measure 5-4

The following mitigation measures would reduce the effects of Impacts 5-4a through 5e, Expose People or Structures to a Significant Risk of Loss, Injury or Death Involving Flooding, Including Flooding as a Result of the Failure of a Levee or Dam:

- ◆ Prepare a drainage or hydrology and hydraulics study that would assess the need and provide a basis for the design of drainage-related mitigations, such as new onsite drainage systems or new

cross drainage facilities. Prepare the study in accordance with applicable standards of FEMA, USACE, DWR, CVFPB, as well as the local reclamation districts and flood control agencies and the counties and cities. Design subsequent mitigation measures in accordance with the final study and with the applicable standards of FEMA, USACE, DWR, and CVFPB.

- ◆ Where high channel velocities might result from construction, provide bank protection, such as rip rap, to protect levees from erosion.
- ◆ Where construction results in longer channel wind fetch lengths, install vegetative buffer zones or wave erosion protection on the water side slope of levees, such as rock or grouted rip rap, and increase levee freeboard to address higher wind and wave runoff.
- ◆ Based on the drainage or hydrology and hydraulics study, determine any resulting changes to available evacuation plans or emergency response times.
- ◆ To reduce emergency response times and public safety risks, raise structures and major roads out of the floodplain.
- ◆ Provide automated flood warning systems.
- ◆ Develop and implement area-specific evacuation and emergency response plans.
- ◆ Considering the results of the hydraulics study noted above, perform a seepage and stability analyses that would assess the need and act as a basis for design of other seepage- and stability-related mitigations, such as cutoff walls, adjacent levees, setback levees, berms, and subdrainage features. Perform the analyses in accordance with applicable standards of FEMA, USACE, and DWR.
- ◆ Perform research and collect subsurface information in accordance with applicable standards of FEMA, USACE, and DWR and perform settlement analyses that would assess the need for monitoring and potential settlement-related mitigations, such as ground improvement or pre-construction surcharging. Perform the analyses in accordance with applicable standards of USACE.
- ◆ Perform research and collect subsurface information in accordance with applicable standards of FEMA, USACE, and DWR and perform seismic and liquefaction analyses that would assess the need and provide the basis for design of other seismic-related mitigations, such as ground improvement. Perform the analyses in accordance with applicable standards of USACE and American Society of Civil Engineers and Southern California Earthquake Center.
- ◆ Prepare and implement a plan for periodic maintenance, inspections, repair, and rehabilitation of new water storage and conveyance facilities that could cause flooding upon failure.
- ◆ Provide redundancy and safety controls and devices on water storage and conveyance facilities (pump stations, canals, and tunnels) to protect against facility failure and subsequent flooding.
- ◆ To limit flooding from the unlikely event of a conveyance facility failure, limit extensive flow escape with installation of safety devices such as gated checks.
- ◆ Construct new evacuation roads and access roads, as necessary.
- ◆ Conduct Golden Guardian emergency drills.¹

¹ First implemented in 2004, Golden Guardian, California's Annual Statewide Exercise Series, has become the most comprehensive state-level exercise series program in the country. The goal of Golden Guardian is to exercise and assess emergency operations

These mitigation measures are commonly employed on a variety of construction projects. In many cases, they reduce significant construction-related flood management impacts to less-than-significant levels. Implementation of these mitigation measures would reduce the significance of construction-related and operations-related flood management impacts by site-specific hydrology and hydraulic studies, channel modifications, and emergency preparedness and response programs. In some cases it will not be feasible to fully implement the mitigation measures in a manner that completely eliminates flood-management-related impacts due to local hydrology and topography. Moreover, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Council. For these reasons, construction-related and operations-related flood management impacts would remain **significant**.

5.4.3.6.4 Mitigation Measure 5-5

The following mitigation measures would reduce the effects of Impacts 5-5a through 5e, Place Within a 100-year Flood Hazard Area Structures Which Would Impede or Redirect Flood Flows, or Inundation by Seiche, Tsunami, or Mudflow:

- ◆ Prepare a drainage or hydrology and hydraulics study that would assess the need and provide a basis for the design of drainage-related mitigations, such as new onsite drainage systems or new cross drainage facilities. Prepare the study in accordance with applicable standards of FEMA, USACE, DWR, CVFPB, as well as the local reclamation districts and flood control agencies and the counties and cities. Design subsequent mitigation measures in accordance with the final study and with the applicable standards of FEMA, USACE, DWR, and CVFPB. Provide temporary drainage bypass facilities that would reroute drainage around, along, or over the Proposed Project facilities and construction sites. The temporary bypass facilities would be designed in accordance with drainage or hydrology and hydraulic study and would be in place and fully functional until long-term replacement facilities are completed.
- ◆ Based on the results of the drainage or hydrologic and hydraulic study, arrange the length of any stockpiles or other construction features in the direction of the floodplain flow to maximize surface flows under flood conditions.
- ◆ At in-stream construction sites that might reduce channel capacity, install setback levees or bypass channels to maintain channel capacity and to mitigate hydraulic impacts.
- ◆ Provide cross drainage, replacement drainage paths and facilities, and enlarged flow paths to reroute drainage around, under, or over the Proposed Project facilities and to restore the function of any affected existing drainage or flow paths and facilities.
- ◆ Channel modifications for restoration actions would be required to be implemented to maintain or improve flood management functions and would be coordinated with the USACE, DWR, CVFPB, and other flood control agencies to assess the desirability and feasibility for channel modifications. To the extent consistent with floodplain land uses and flood control requirements, if applicable, woody riparian vegetation would be allowed to naturally establish.

These mitigation measures are commonly employed on a variety of construction projects. In many cases, they reduce significant construction-related flood management impacts to less-than-significant levels. Implementation of these mitigation measures would reduce the significance of construction-related and operations-related flood management impacts by site-specific hydrology and hydraulic studies and channel modifications. In some cases it will not be feasible to fully implement the mitigation measures in

plans, policies, and procedures for all-hazards/catastrophic incidents at the local, regional, and state levels, as described in subsection 5.3.7.2.2.

1 a manner that completely eliminates flood-management-related impacts due to local hydrology and
2 topography. Moreover, as discussed above, with regard to actions taken by other agencies on the basis of
3 Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and
4 enforcement of these measures would be within the responsibility and jurisdiction of public agencies
5 other than the Council. For these reasons, construction-related and operations-related flood management
6 impacts would remain **significant**.

Section 6

Land Use and Planning

6.4.3.6.1 Mitigation Measure 6-1

The following mitigation measures would reduce the effects of Impact 6-1a through e, Physical Division of an Established Community:

- ♦ Minimize physical division of existing established communities or residential areas by designing new facilities and infrastructure to be located underground or with sufficient points of visual and physical access. Examples of methods of minimizing physical division include (but are not limited to):
 - Burying or visually masking new infrastructure or facilities;
 - Restoring disturbed landscapes back to preconstruction conditions;
 - Reestablishing access (e.g., reconnecting roads, rebuilding bridges);
 - Relocating landmark buildings; or
 - Implementing other feasible mitigation to reduce the disturbance to a community's physical composition, visual character, or other features integral to the community's identity.

These mitigation measures are commonly employed on a variety of projects. In many cases, they reduce significant land use impacts to less-than-significant levels. Implementation of these mitigation measures would reduce the significance of land use impacts, minimizing division of existing communities by new facilities through measures such as undergrounding or masking of utilities to reduce disturbance to key community features. Moreover, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Council. For these reasons, impacts related to division of existing communities would remain **significant**.

6.4.3.6.2 Mitigation Measure 6-2

The following mitigation measures would reduce the effects of Impact 6-2a through e, Conflict of Constructed Facilities with an Applicable Land Use Plan, Policy, Regulation, or Restriction on Land That Was Adopted for the Purpose of Avoiding or Mitigating an Environmental Impact:

- ♦ Compensate for the loss or reduction in environmental values protected by the subject plan or policy. For example, if the project would result in conversion of agricultural land to a non-agricultural use, potential mitigation actions could include:
 - Recording a deed restriction that ensures permanent conservation and mitigation on other property of equal or greater environmental mitigation value;
 - Creating a buffer or barrier between uses;
 - Redesigning the project or selecting an alternate location that avoids or mitigates the impact; and/or
 - Restoring disturbed land to conditions to provide equal or greater environmental value to the land affected by the covered action.

1 This mitigation measure will likely reduce the conflict with local plans to a less-than-significant level. In
2 some cases, such mitigation may not be feasible, as when no comparable land is available for protection
3 in mitigation for a project that involves conversion to non-agricultural use. Moreover,, as discussed
4 above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations
5 (i.e., activities that are not covered actions), the implementation and enforcement of these measures would
6 be within the responsibility and jurisdiction of public agencies other than the Council. For these reasons,
7 land use conflict impacts would remain **significant**.

Section 7

Agriculture and Forestry Resources

7.4.3.6.1 Mitigation Measure 7-1

The following mitigation measures would reduce the effects of Impact 7-1a through e, Conversion of Farmland to Nonagricultural Uses, and Impact 7-5a through e, Involve Other Changes in the Existing Environment That, Because of Their Location or Nature, Could Result in Conversion of Farmland to Nonagricultural Use or Conversion of Forestland to Nonforest Use:

- ◆ Design proposed projects to minimize, to the greatest extent feasible, the loss of the highest valued agricultural land.
- ◆ ~~For projects that will result in permanent conversion of Farmland, P~~preserve, ~~to the greatest extent feasible,~~ in perpetuity other Farmland through acquisition of an agricultural conservation easement, or contributing funds to a land trust or other entity qualified to preserve Farmland in perpetuity (at a ~~target~~ ratio of 1:1 ~~or more,~~ depending on the ~~nature of the conversion and the characteristics of the Farmland to be converted,~~ to compensate for permanent loss).
- ◆ Redesign project features, ~~to the greatest extent feasible,~~ to minimize fragmenting or isolating Farmland. Where a project involves acquiring land or easements, ensure that the remaining nonproject area is of a size sufficient to allow ~~economically~~-viable farming operations. The project proponents shall be responsible for acquiring easements, making lot line adjustments, and merging affected land parcels into units suitable for continued commercial agricultural management.
- ◆ Reconnect utilities or infrastructure that serve agricultural uses if these are disturbed by project construction. If a project temporarily or permanently cuts off roadway access or removes utility lines, irrigation features, or other infrastructure, the project proponents shall be responsible for restoring access as necessary to ensure that economically viable farming operations are not interrupted.
- ◆ Manage project operations, ~~to the greatest extent feasible,~~ to minimize the introduction of invasive species or weeds that may affect agricultural production on adjacent agricultural land. . ~~Where a project has the potential to introduce sensitive species or habitats or have other spill over effects on nearby agricultural lands, the project proponents shall be responsible for acquiring easements on nearby agricultural land and/or financially compensating for indirect effects on nearby agricultural land. Easements (e.g., flowage easements) shall be required for temporary or intermittent interruption in farming activities (e.g., because of seasonal flooding or groundwater seepage). Acquisition or compensation would be required for permanent or significant loss of economically viable operations.~~

- ◆ Establish buffer areas, ~~to the greatest extent feasible~~, between projects and adjacent agricultural land that are sufficient to protect and maintain land capability and agricultural operation flexibility. Design buffers to protect the feasibility of ongoing agricultural operations and reduce the effects of construction- or operation-related activities (including the potential to introduce special-status species in the agricultural areas) on adjacent or nearby properties. The buffer shall also serve to protect ecological restoration areas from noise, dust, and the application of agricultural chemicals. The width of the buffer shall be determined on a project-by-project basis to account for variations in prevailing winds, crop types, agricultural practices, ecological restoration, or infrastructure. Buffers can function as drainage swales, trails, roads, linear parkways, or other uses compatible with ongoing agricultural operations.

These mitigation measures are commonly employed on a variety of projects. In many cases, they reduce significant agricultural resources impacts to less-than-significant levels. Implementation of these mitigation measures would reduce the significance of agricultural conversion impacts by redesigning projects to minimize fragmentation of Farmland, preserving Farmland through acquisition of easements, and using buffers and control of invasive species to protect agricultural uses. In cases where substantial areas of lands would still be converted from agricultural use, these related impacts would remain **significant**.

7.4.3.6.2 Mitigation Measure 7-2

The following mitigation measures would reduce the effects of Impact 7-2a through e, Conflict with Existing Zoning for Agricultural Use or a Williamson Act Contract:

- ◆ Design proposed projects to minimize, to the greatest extent feasible, conflicts and inconsistencies with the loss of land protected by agricultural zoning or a Williamson Act contract and the terms of the applicable zoning/contract.

These mitigation measures are commonly employed on a variety of projects. In many cases, they reduce significant agricultural resources impacts to less-than-significant levels. Implementation of these mitigation measures would reduce the significance of agricultural conversion impacts related to zoning or Williamson Act incompatibility by redesigning projects to minimize fragmentation of agricultural and limiting restoration activities to those that are consistent with zoning or Williamson Act contracts. In cases where substantial areas of incompatibility would exist, and lands would still be converted from agricultural use, these related impacts would remain **significant**.

7.4.3.6.3 Mitigation Measure 7-3

The following mitigation measures would reduce the effects of Impact 7-3a through e, Conflict with Existing Zoning for, or Cause Rezoning of, Forestland, Timberland, or Timberland Zoned for Timberland Production:

- ◆ Avoid land protected as forestland and timberland through site selection and/or project design, ~~to the greatest extent feasible~~. Where feasible, project proponents should take into account the value of the forest, not only in terms of direct products such as wood but also as part of the watershed ecosystem, when selecting a project site. Wherever possible, nonprotected sites should be preferred and selected instead of protected sites.

These mitigation measures are commonly employed on a variety of projects. In many cases, they reduce significant forest resources impacts to less-than-significant levels. Implementation of these mitigation measures would reduce the significance of forestland conversion impacts related to zoning or TPZ incompatibility by redesigning projects to avoid high-value forest areas and limiting restoration activities to those that are consistent with zoning or TPZ requirements. In cases where substantial areas of incompatibility would exist, and lands would still be converted from forest use, these related impacts would remain **significant**.

7.4.3.6.4 Mitigation Measure 7-4

The following mitigation measures would reduce the effects of Impact 7-4a through e, Loss of Forestland or Conversion of Forestland to Nonforest Use, and Impact 7-5a through e, Involve Other Changes in the Existing Environment That, Because of Their Location or Nature, Could Result in Conversion of Farmland to Nonagricultural Use or Conversion of Forestland to Nonforest Use:

- ◆ For projects that will result in permanent conversion of Forestland, preserve, to the greatest extent feasible, in perpetuity other forestland through a conservation easement or by acquiring lands or contributing funds to a land trust or other agency (at a ~~minimum-target~~ ratio of 1:1, depending on the nature of the conversion and the characteristics of the Forestland to be converted, to compensate for permanent loss).
- ◆ Avoid land protected as forestland and timberland, ~~to the greatest extent feasible,~~ through site selection and/or project design. Where feasible, project proponents should take into account the value of the forest, not only in terms of direct products such as wood, but also as part of the watershed ecosystem, when selecting a project site. When possible, unprotected sites should be preferred and selected instead of protected sites.
- ◆ When removal of existing forestland or timberlands is required as part of an action, proponents must acquire the property at fair market value.

These mitigation measures are commonly employed on a variety of projects. In many cases, they reduce significant agricultural and forestry resources impacts to less-than-significant levels. Implementation of these mitigation measures would reduce the significance of agricultural and forestland conversion impacts by redesigning projects to avoid and minimize fragmentation of Farmland and forestland, preserving Farmland and forestland through acquisition of easements, and limiting restoration activities to those consistent with existing zoning. In cases where substantial areas of lands would still be converted from agricultural or forest use, these related impacts would remain **significant**.

Section 8

Visual Resources

8.4.3.6.1 Mitigation Measure 8-1

The following mitigation measures would reduce the effects of Impact 8-1a through e, Substantial Degradation of Visual Qualities:

- ◆ Use compatible colors for proposed structural features, such as intakes, pumping plants, and surge towers. Use earth tone paints and stains with low levels of reflectivity.
- ◆ Minimize the vertical profile of proposed structures as much as possible. Where possible, use subgrades for floors of structures. Use landscaped berms instead of walls to mask views of structures from high-visibility sites. Use green roof design where roof structures would be highly visible.
- ◆ Use vegetation plantings on proposed facility walls, such as climbing plants, espaliers, and other forms that soften the appearance of structures.
- ◆ Develop a landscaping plan for all proposed structures. Provide vegetative screening to soften views of structures. Landscaping should complement the surrounding landscape.
- ◆ Round the tops and bottoms of spoil disposal areas, and contour the faces of slopes to create more natural-looking landforms. Create visual diversity by planting vegetation with diverse growth forms on the spoil disposal areas; plant with more than just grasses.
- ◆ Landscape parking areas at proposed facilities, and include low-impact design features, such as permeable pavers, tree basins, and bioswales, that reduce stormwater runoff and enhance visual quality.
- ◆ Conduct only partial vegetative clearing of the limits of construction rather than clear the entire area; partial clearing would leave islands of vegetation and result in a more natural look. Use irregular clearing shapes with feathered edges instead of hard edges to promote a more natural effect.
- ◆ Develop design form and materials with a goal to achieve aesthetic visual character instead of a strictly utilitarian objective. Use cast natural form elements or natural materials (~~stone~~) for facing to achieve texture and color compatible with the adjacent landscape; natural materials would be preferable for areas of high visibility and public use. Landscape areas adjacent to facilities. Use natural materials, such as wood and stone, for signage at proposed facilities.
- ◆ Develop aesthetically pleasing landscaping for relocated roads at the shoulders, intersections, and on- and off-ramps from highways. Design turnouts and scenic vista points where appropriate for relocated roads with high visibility and high public use.
- ◆ To the extent consistent with the safety and reliability of the electric grid, as well as site-specific considerations, Use single-pole electrical transmission towers instead of lattice-form towers for proposed large electrical transmission lines, and put transmission lines underground along areas with high visibility and high public use.
- ◆ Consider developing aesthetically well-designed visitor centers, vantage areas, or observation decks at appropriate facilities with interpretation features, walking paths, and other features. Although developing visitor centers would not reduce a visual impact, it would have the effect of making the facilities features of interest to the touring public.

These mitigation measures are commonly employed on a variety of projects. In many cases, they reduce significant impacts on visual resources to less-than-significant levels. Implementation of these mitigation measures would reduce the significance of impacts on visual resources by minimizing the intrusiveness of new structures on the landscape; revegetating areas cleared for staging and construction; including landscaping for new facilities; using attractive materials and interesting design features; and providing visitors centers, vantage areas, or observation decks. In cases when a project feature changes a landscape or viewshed to the extent that the character of the view is degrading to the point of intruding on a viewer's expectations impacts on visual resources would remain **significant**.

8.4.3.6.2 Mitigation Measure 8-2

The following mitigation measures would reduce the effects of Impact 8-2a through e, Adverse Effects on Scenic Vistas and Scenic Resources:

- ◆ Implement elements of Mitigation Measure 8-1 for temporary construction activities and new facilities that are visible from scenic vistas and designated roads and highways as appropriate.
- ◆ Replace all scenic resources (e.g., large trees) that would be removed for the Proposed Project, when feasible. Identify compensatory mitigation for visual or aesthetic resources by providing improvements to areas with existing diminished scenic quality.

These mitigation measures are commonly employed on a variety of projects. In many cases, they reduce significant impacts on scenic resources that are visible from a designated road or highway to less-than-significant levels. Implementation of these mitigation measures would replace to the extent possible scenic features that must be removed for new facilities. In cases when scenic resources cannot be replaced (for example, the removal of a large heritage tree that is the focus of a public vista), the significance of impacts on scenic resources that are visible from a designated road or highway would remain **significant**.

8.4.3.6.3 Mitigation Measure 8-3

The following mitigation measure would reduce the effects of Impact 8-3a through e, New Sources of Substantial Light or Glare:

- ◆ Use shields for proposed lighting facilities, and direct lighting downward and inward toward the facilities.

This measure is commonly employed on a variety of projects. In many cases, it reduces significant light and glare impacts by reducing light scatter to less-than-significant levels. In cases when lighting cannot be screened from sensitive viewers, light and glare impacts would remain **significant**.

Section 9

Air Quality

9.5.3.6.1 Mitigation Measure 9-1

The following mitigation measures and BMPs, when implemented (as applicable) during construction of projects and continued during operations and maintenance, would reduce the effects of Impact 9-1a, Conflict with an Applicable Air Quality Plan, Contribute Substantially to an Air Quality Violation, and/or Result in a Cumulatively Considerable Net Increase of Nonattainment Pollutants:

- ◆ Use equipment and vehicles that are compliant with ARB requirements and emission standards for on-road and off-road fleets and engines. New engines and retrofit control systems should reduce NO_x and PM from diesel-fueled on-road and off-road vehicles and equipment.
- ◆ Minimize idling times either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage should be posted for construction workers at all entrances to the site.
- ◆ Maintain all equipment in proper working condition according to manufacturer's specifications.
- ◆ Use electric equipment when possible. Use lower-emitting alternative fuels to power vehicles and equipment where feasible.
- ◆ Use low Volatile Organic Compounds (VOC) coatings and chemicals; minimize chemical use.
- ◆ Prepare a dust control plan and apply dust control measures at the construction sites.
- ◆ To minimize track-out of dirt and mud from dirt and gravel roads, all trucks and equipment, including their tires, shall be washed prior to leaving the site. Only exteriors of trucks and equipment are to be washed (no engine degreasing), no detergents or chemicals shall be used in the wash water, and off-site runoff of rinse water shall be prevented.
- ◆ For projects involving land fallowing, land conversion, or other agricultural operations, implement applicable BMPs from agencies such as the U.S. Department of Agriculture Natural Resources Conservation Service to reduce potential dust emissions.

BMPs for fallowed lands could include, but are not limited to, the following:

- ◆ Implement conservation cropping sequences and wind erosion protection measures, such as:
 - Plan ahead to start with plenty of vegetation residue, and maintain as much residue on fallowed fields as possible. Residue is more effective for wind erosion protection if left standing.
 - If residues are not adequate, small grain can be seeded about the first of the year to take advantage of the winter rains and irrigated with a light irrigation if needed to get adequate growth.
 - Avoid any tillage if possible.
 - Avoid any traffic or tillage when fields are extremely dry to avoid pulverization.
- ◆ Apply soil stabilization chemicals to fallowed lands.

- ◆ Re-apply drain water to allow protective vegetation to be established.
- ◆ Reuse irrigation return flows to irrigate windbreaks across blocks of land including many fields to reduce wind fetch and reduce emissions from fallowed, farmed, and other lands within the block. Windbreak species, management, and layout would be optimized to achieve the largest feasible dust emissions reduction per unit water available for their irrigation. Windbreak corridors would provide ancillary aesthetic and habitat benefits.

Project-specific lists of mitigation measures should also include the recommendations or requirements of the local air district(s). For example, the BAAQMD lists the following basic and additional mitigation measures to reduce emissions from project construction (BAAQMD 2010).

Basic Construction Mitigation Measures Recommended for ALL Proposed Projects

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
8. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Additional Construction Mitigation Measures Recommended for Projects with Construction Emissions Above the Threshold

1. All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.
2. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
3. Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.

4. Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
5. The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
6. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
7. Site accesses to a distance of 100 feet from the paved road shall be treated with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel.
8. Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
9. Minimizing the idling time of diesel powered construction equipment to two minutes.
10. The project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NO_x reduction and 45 percent PM reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.
11. Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings).
12. Requiring that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NO_x and PM.
13. Require all contractors to use equipment that meets ARB's most recent certification standard for off-road heavy duty diesel engines.

Source: BAAQMD 2010.

9.5.3.6.2 Mitigation Measure 9-2

The following mitigation measures would reduce the effects of Impacts 9-2a, Construction and Operations of a Project Would Create Objectionable Odors Affecting a Substantial Number of People:

- ◆ Applicants should develop and implement a project-specific Odor Management Plan. Odor control measures that can be incorporated into this plan include, but are not limited to, the following:
 - A list of potential odor sources
 - Identification and description of the most likely sources of odor
 - Identification of potential, intensity, and frequency of odor from likely sources
 - A list of odor control technologies and management practices that could be implemented to minimize odor releases

- A protocol for monitoring, ~~and recording, reporting and responding to~~ odor events, including notification of the local and downwind jurisdictions of projects that may result in odor complaints, including contact numbers for responsible individuals during construction. If odor an event occurs, construction activity should be suspended until conditions change, removing the cause and resultant odors, or until alternate management practices are implemented that significantly reduce the odors.

~~• A protocol for reporting and responding to odor events~~

9.5.3.6.3 Mitigation Measure 9-3

The Air Quality Technical Report prepared for the Proposed Project should evaluate human health risks from potential exposures of sensitive receptors to substantial pollutant concentrations on a project-specific basis. The need for a human health risk analysis should be evaluated using approved screening tools, and discussed with the local AQMD or APCD at the time of preparation of the Air Quality Technical Report.

If the health risk is determined to be significant on a project-specific basis, control measures should be implemented to reduce health risks to levels below the applicable air district threshold.

Implementation of one or more of the following requirements, where feasible and appropriate would reduce the effects of Impact 9-3a, Construction or Operation of Projects Would Expose Sensitive Receptors to Substantial Pollutant Concentrations:

- ◆ Implement Mitigation Measure 9-1 to reduce air emissions and air quality impacts from construction and operations of the Proposed Project.
- ◆ Use equipment with diesel engines designed or retrofitted to minimize DPM emissions, usually through the use of catalytic particulate filters in the exhaust.
- ◆ Use electric equipment to eliminate local combustion emissions.
- ◆ Use alternative fuels, such as compressed natural gas or liquefied natural gas.

If the project would result in significant emissions of airborne, naturally occurring asbestos or metals from excavation, hauling, blasting, tunneling, placement, or other handling of rocks or soil, a dust mitigation and air monitoring plan would be required to specify site-specific measures to minimize emissions and that airborne concentrations of the TACs of concern do not exceed regulatory or risk-based trigger levels.

Because it is not known whether the mitigation measures listed above would reduce Impacts 9-1 and 9-3 to a less-than-significant level for the Proposed Project, these potential impacts are considered **significant and unavoidable**.

Section 10

Cultural Resources

10.4.3.6.1 Mitigation Measure 10-1

The following mitigation measures would reduce the effects of Impact 10-1a through e, Disturbance or Destruction of Prehistoric and Historic-era Archaeological Resources:

- ◆ Before any ground-disturbing activities begin, conduct intensive archaeological surveys, including subsurface investigations to identify the locations, extent, and integrity of presently undocumented archaeological resources that may be located in areas of potential disturbance. In addition, if ground-disturbing activities are planned for an area where a previously documented prehistoric archaeological site has been recorded but no longer may be visible on the ground surface, conduct test excavations to determine whether intact archaeological subsurface deposits are present. Also conduct surveys at the project site for the possible presence of cultural landscapes and traditional cultural properties.
- ◆ If potentially CRHR-eligible prehistoric or historic-era archeological resources are discovered during the survey phase, additional investigations may be necessary. These investigations could include, but not necessarily be limited to, measures providing resource avoidance, archival research, archaeological testing and CRHR eligibility evaluations, and contiguous excavation unit data recovery. In addition, upon discovery of potentially CRHR-eligible prehistoric resources, coordinate with the NAHC and the Native American community to provide for an opportunity for suitable individuals and tribal organizations, including federally recognized tribes, to comment on the proposed research.
- ◆ If CRHR-eligible archaeological resources or cultural landscapes/properties are present and would be physically impacted, specific strategies to avoid or protect these resources should be implemented if feasible. These measures may include:
 - Planning construction to avoid the sensitive sites
 - Deeding the sensitive sites into permanent conservation easements
 - Capping or covering archaeological sites
 - Planning parks, green space, or other open space to incorporate the sensitive sites
 - Granting of cultural easements to Native American tribes for the purpose of protecting cultural resource properties
- ◆ If federal agencies are participants in the activity and Section 106 of the National Historic Preservation Act applies, conduct formal consultation with the State Historic Preservation Officer, Tribal Historic Preservation Officer (THPO) or Tribal Administrator for tribes that do not have a THPO, and the Native American community. Potential adverse effects on cultural resources recommended as eligible for listing in the NRHP will be resolved through the development of a memorandum of agreement and/or a program-level agreement.
- ◆ As part of efforts to identify, evaluate, and consider cultural resources, including prehistoric sites, Native American human remains, and traditional cultural properties, Native Americans would be consulted. The California Native American Heritage Commission (NAHC) would be asked to provide a list of Native Americans who should be contacted concerning an identified future project. The NAHC would also be asked to search its Sacred Lands Files. Native Americans identified by the NAHC would be contacted by letter to request information on cultural resources of importance. They also would be asked to identify concerns they have about the project. THPOs

and Tribal Administrators of federally recognized tribes would be contacted and asked to search their files and provide information necessary for the identification and consideration of cultural resources.

◆ Before any project-specific ground-disturbing activities begin, conduct investigations to identify submerged cultural resources. These investigations would include review of State Lands Commission (SLC) Shipwrecks Database and other SLC files, and remote sensing surveys conducted under the direction of a qualified maritime archaeologist. If avoidance of significant submerged cultural resources is not feasible, a permit from SLC may be necessary to conduct resource documentation and possible salvage of artifacts, ship components, and other data and objects.

◆ If CRHR-eligible archaeological resources, including submerged or buried shipwrecks or other maritime-related cultural resources, are discovered during construction activities, work would halt within 100 feet of the discovery until the find can be evaluated by a qualified archaeologist or maritime archaeologist as appropriate. In addition, SLC would be consulted.

These mitigation measures are commonly employed on a variety of projects. In many cases, they reduce potential significant impacts on archaeological resources and cultural landscapes/properties to less-than-significant levels. The reference EIRs mentioned earlier for Impact 10-1 across the five general categories of potential Delta-Plan-influenced projects generally applied these types of mitigation measures for archaeological resource impacts and concluded they would mitigate the impacts to less-than-significant levels, except when subsurface areas that had not yet been evaluated for the presence of archeological resources could be disturbed by the project.

Implementation of the mitigation measures listed above would reduce the significance of impacts on archaeological resources, cultural landscapes, and traditional cultural properties by requiring that surveys for the presence of cultural and archaeological resources be conducted prior to beginning construction activities and requiring that construction and/or project siting be planned to avoid archaeological sites where possible. In cases where it is not feasible to relocate construction/project activities away from cultural resources, impacts would remain **significant and unavoidable**.

Although the details of many of the aspects of named projects and projects encouraged by the Delta Plan are not known, based on these examples, it is likely that the archaeological resources impacts of at least some projects encouraged by the Delta Plan could be significant prior to mitigation, particularly if ground disturbing activities affect subsurface areas that have not yet been evaluated for the presence of cultural resources. Even with mitigation, is possible that an impact would remain significant and unavoidable if project redesign cannot avoid destruction or alteration of cultural resources or if these resources cannot be properly evaluated and documented.

10.4.3.6.2 Mitigation Measure 10-2

The following mitigation measures would reduce the effects of Impact 10-2a through e, Discovery of Unrecorded Human Remains: The identification, evaluation, and determination of disposition of Native American human remains shall be conducted in accordance with Native American consultation procedures described below and in Mitigation Measure 10-1. The location, content, and character of Native American human remains are confidential and shall not be released to the public. Native American human remains and associated funerary objects shall be treated with the utmost respect and in accordance with the direction of the identified Most Likely Descendant.

◆ If human remains are encountered during ground-disturbing construction activities, stop work that would potentially affect the find and contact the county coroner.

- 1 • In accordance with the California Health and Safety Code and the California Native
2 American Grave Protection and Repatriation Act (CNAGPRA), if human remains are
3 uncovered during ground-disturbing activities, the contractor shall immediately halt
4 potentially damaging excavation in the area of the burial and notify the county coroner, a
5 professional archaeologist to determine the nature of the remains, and a representative of
6 California Indian tribes. The coroner is required to examine all discoveries of human remains
7 within 48 hours of receiving notice of a discovery on private or State lands (Health and
8 Safety Code section 7050.5[b]). If the coroner determines that the remains are those of a
9 Native American, he or she must contact the NAHC by telephone within 24 hours of making
10 that determination (Health and Safety Code section 7050[c]).
- 11 • Following the coroner's findings, the property owner, contractor or project proponent, an
12 archaeologist, and the NAHC-designated Most Likely Descendent (MLD) shall determine the
13 ultimate treatment and disposition of the remains and take appropriate steps to ensure that
14 additional human interments are not disturbed. The responsibilities for acting upon
15 notification of a discovery of Native American human remains are identified in California
16 Public Resources Code section 5097.9.
- 17 • Upon the discovery of Native American remains, the landowner shall ensure that the
18 immediate vicinity (according to generally accepted cultural or archaeological standards and
19 practices) is not damaged or disturbed by further development activity until consultation with
20 the MLD has taken place. The MLD shall have 48 hours to complete a site inspection and
21 make recommendations after being granted access to the site.
- 22 • A range of possible treatments for the remains, including nondestructive removal and
23 analysis, preservation in place, relinquishment of the remains and associated items to the
24 descendants, or other culturally appropriate treatment, may be discussed. California Public
25 Resources Code section 5097.9 suggests that the concerned parties may extend discussions
26 beyond the initial 48 hours to allow for the discovery of additional remains. The following is
27 a list of site protection measures that the landowner shall employ:
 - 28 (1) Record the site with the NAHC or the appropriate information center.
 - 29 (2) Use an open space or conservation zoning designation or easement.
 - 30 (3) Record a document with the county in which the property is located.
- 31 • The landowner or his or her authorized representative shall rebury the Native American
32 human remains and associated grave goods with appropriate dignity on the property in a
33 location not subject to further subsurface disturbance if the NAHC is unable to identify a
34 MLD or if the MLD fails to make a recommendation within 48 hours after being granted
35 access to the site. The landowner or his or her authorized representative may also reinter the
36 remains in a location not subject to further disturbance if he or she rejects the
37 recommendation of the MLD and mediation by the NAHC fails to provide measures
38 acceptable to the landowner.
- 39 ♦ If the discovery of human remains occurs on lands owned and administered by a federal agency,
40 the provisions of the Native American Graves Protection and Repatriation Act (NAGPRA) will
41 apply. NAGPRA requires federal agencies and certain recipients of federal funds to document
42 Native American human remains and cultural items in their collections, notify native groups of
43 their holdings, and provide an opportunity for repatriation of these materials. The act also requires
44 planning for dealing with potential future collections of Native American human remains and
45 associated funerary objects, sacred objects, and objects of cultural patrimony.

These mitigation measures are commonly employed on a variety of projects. In most cases, they reduce significant impacts on undiscovered human remains to less-than-significant levels. The reference EIRs mentioned earlier for Impact 10-2 across the five general categories of potential Delta-Plan-influenced projects generally (applied these types of mitigation measures for potential impacts to undiscovered human remains and concluded they would mitigate the impacts to less-than-significant levels, except when subsurface areas that had not yet been evaluated for the pretense of archeological resources could be disturbed by the project.)

Implementation of these mitigation measures would reduce the significance of impacts of Delta-Plan-influenced projects on human remains by requiring training of workers, notification of the coroner and professional archaeologist, and notification of MLDs. In cases where it is not feasible to relocate construction activities away from human remains or in the case of large discoveries, these impacts would remain **significant and unavoidable**.

Although the details of many of the aspects of named projects and projects encouraged by the Delta Plan are not known, based on these examples, it is likely that potential impacts on unrecorded human remains of at least some projects encouraged by the Delta Plan would be significant prior to mitigation. Even with mitigation, is possible that an impact would remain significant and unavoidable if project redesign cannot avoid destruction or alteration of cultural resources or if these resources cannot be properly evaluated and documented.

10.4.3.6.3 Mitigation Measure 10-3

The following mitigation measures would reduce the effects of Impact 10-3a through e, Disturbance or Destruction of Historic Buildings, Structures, and Linear Features:

- ♦ Inventory and evaluate historic-era buildings, structures, and linear features. Conduct cultural resources studies to determine whether historic-era buildings, structures, and linear features in the project area are eligible for listing in the CRHR.
- ♦ Before construction activities begin, an inventory and evaluation of historic-era resources in the project area should be conducted under the direct supervision of an architectural historian meeting the Secretary of the Interior's Professional Qualification Standards for history or architectural history. The documentation should include conducting an intensive field survey, background research on the history of the project area, and property-specific research. Based on this research, the eligibility of historic-era resources located in the project area should be evaluated by the architectural historian using criteria for listing in the CRHR. The resources would be recorded on DPR 523 forms and the findings documented in a technical report. If federal funding or approval is required, then the project implementation agencies would comply with Section 106 of the National Historic Preservation Act
- ♦ Identify measures to avoid significant historic resources. Avoidance through project redesign is the preferred mitigation measure for mitigating potential effects on historic-era buildings, structures, linear features, and archaeological sites that appear to be eligible for listing in the NRHP or CRHR.
- ♦ Record photographic and written documentation to Historic American Building Survey (HABS)/Historic American Engineering Record (HAER) standards. If avoidance of a significant historic resource is not feasible, the lead agency should ensure that HABS/HAER documentation is completed. Through HABS/HAER documentation, a qualified architectural historian and qualified photographer should formally document the historic resource through large-format photography, measured drawings, written architectural descriptions, and historical narratives. The completed documentation should be submitted to the Library of Congress.

- ◆ Conform to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings in the event of relocation. If any historic buildings, structures, or levees are relocated or altered, the lead agency should ensure that any changes to significant buildings or structures conform to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. Implementation of this measure can mitigate potential changes to significant architectural resources.
- ◆ Conform to the Secretary of the Interior's Guidance for the Treatment of Cultural Landscapes to preserve landscapes' historic form, features, and details that have evolved over time.

These mitigation measures are commonly employed on a variety of projects. In many cases, they reduce significant impacts on historic resources to less-than-significant levels. The reference EIRs mentioned earlier for Impact 10-3 across the five general categories of potential Delta-Plan-influenced projects generally (applied these types of mitigation measures for potential impacts to historic resources and concluded they would mitigate the impacts to less-than-significant levels, except when subsurface areas that had not yet been evaluated for the pretense of archeological resources could be disturbed by the project).

Implementation of these mitigation measures would reduce the significance of construction-related impacts on historic resources by requiring that historic resources be inventoried prior to beginning construction activities and requiring that construction be planned to avoid these resources where possible. In cases where it is not feasible to relocate construction activities away from cultural resources, construction-related impacts would remain **significant and unavoidable**.

Although the details of many of the aspects of named projects and projects encouraged by the Delta Plan are not known, based on these examples, it is likely that potential impacts on historic resources of at least some projects encouraged by the Delta Plan would be significant prior to mitigation. Even with mitigation, is possible that an impact would remain significant and unavoidable if project redesign cannot avoid destruction or alteration of cultural resources or if these resources cannot be properly evaluated and documented.

10.4.3.6.4 Mitigation Measure 10-4

Mitigation measures 10-1 and 10-3 will also mitigate Impact 10-4a through e, Disturbance or Destruction of Cultural Landscapes and Traditional Cultural Properties. However, to mitigate Impact 10-4, Mitigation Measure 10-1 surveys and Mitigation Measure 3 inventories would focus on cultural landscapes and traditional cultural properties. It is anticipated that the mitigation measures would reduce the status of the impacts to a less than significant level, except when subsurface areas that had not yet been evaluated for archeological resources that could be disturbed by the project. Even with mitigation, is possible that an impact would remain **significant and unavoidable** if project redesign cannot avoid destruction or alteration of cultural resources or if these resources cannot be properly evaluated and documented.

Section 11

Geology and Soils

11.5.3.6.1 Mitigation Measure 11-1

The following mitigation measures would reduce the effects of Impact 11-1a, Exposure of People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Rupture of a Known Earthquake Fault:

- ◆ For construction that occurs in an Alquist-Priolo Special Studies Zone, a determination must be made by a licensed practitioner (California Certified Engineering Geologist) that no fault traces are present within the building footprint of any structure intended for human occupancy. The standard of care for such determinations includes direct examination of potentially affected subsurface materials (soil and/or bedrock) by logging of subsurface trenches. Uncertainties regarding the exact locations of future ground ruptures associated with such determinations generally are resolved by providing a minimum setback of 50 feet from any known surface trace of an active fault. For critical structures, such as hospitals, dams, and emergency facilities, more stringent mitigation measures are required, including but not limited to greater structural setbacks and heavier reinforcement against strong ground motion, in compliance not only with California regulations but in many cases in compliance with additional Federal regulations.
- ◆ Lead agencies shall ensure that geotechnical design recommendations are included in the design of facilities and construction specifications to minimize the potential impacts from seismic events and the presence of adverse soil conditions. Recommended measures to address adverse conditions shall conform to applicable design codes, guidelines, and standards.

These mitigation measures are commonly employed on a variety of construction projects. In many cases, they reduce significant impacts due to the rupture of a known earthquake faults to less-than-significant levels. Implementation of these mitigation measures would reduce the significance of impacts; however, due to the potential for facilities constructed to be located on a known earthquake fault, this potential impact would remain **significant**.

11.5.3.6.2 Mitigation Measure 11-2

The following mitigation measures would reduce the effects of Impact 11-2a, Exposure of People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Due to Strong Ground Motion Associated with Seismic Shaking:

- ◆ Require adherence, at minimum, to the precepts of the current approved version of the International Building Code (IBC). Included in the IBC are measures for mitigation of the impacts of strong ground motion on constructed works. In addition to the California –required conformance with the IBC, for critical structures, such as dams (including levees), hospitals, and emergency facilities, additional construction requirements are codified in federal statutes and the regulations of various federal agencies. Lead agencies will, by force of law, require conformance with these codified mitigation measures.

These mitigation measures are commonly employed on a variety of construction projects. In many cases, they reduce significant strong ground motion associated with seismic shaking impacts to less-than-significant levels. Implementation of these mitigation measures would reduce the significance of these impacts by requiring compliance to the mitigation measures in the current approved version of the IBC. In some cases it will not be feasible to comply with these regulations because of the probability of projects to be located in areas where strong ground motion during seismic events can and will occur. For these

reasons, impacts related to strong ground motion associated with seismic shaking would remain significant.

11.5.3.6.3 Mitigation Measure 11-3

The following mitigation measures would reduce the effects of Impact 11-3a, Construction and Operations of Projects Could Be Located on a Geologic Unit or Soil That Is Unstable, or That Would Become Unstable as a Result of the Project, and Potentially Result in Loss of Bearing Value, Lateral Spreading, Subsidence, Liquefaction or Collapse:

- ◆ For projects that would result in significant or potentially significant grading operations, a geotechnical investigation shall be performed and a geotechnical report prepared. The geotechnical report shall include a quantitative analysis to determine whether excavation or fill placement would result in a potential for damage due to soil subsidence during and/or after construction. Project designs shall incorporate measures to reduce the potential damage to an insignificant level, including but not limited to removal and recompaction of existing soils susceptible to subsidence, ground improvement (such as densification by compaction or grouting, soil cementation), and reinforcement of structural components to resist deformation due to subsidence. The site-specific potential for and severity of cyclic seismic loading shall be analyzed in the assessment of subsidence for specific projects.
- ◆ A geotechnical investigation shall be performed by an appropriately licensed professional engineer and/or geologist to determine the presence and thickness of potentially liquefiable sands that could result in loss of bearing value during seismic shaking events. Project designs shall incorporate measures to mitigate the potential damage to an insignificant level, including but not limited to ground improvement (such as grouting or soil cementation), surcharge loading by placement of fill, excavation, soil mixing with non-liquefiable finer-grained materials and replacement of liquefiable materials at shallow depths, and reinforcement of structural components to resist deformation due to liquefaction. An analysis of site-specific probable and credible seismic acceleration values, in accordance with current applicable standards of care, shall be performed to provide for suitable project design.
- ◆ For projects that would result in construction of wells intended for groundwater extraction, a hydrogeological/geotechnical investigation shall be performed in accordance with the current standards of care for such work by an appropriate licensed professional engineer or geologist to identify and quantify the potential for groundwater extraction-induced subsidence. The study shall include an analysis of existing conditions and modeling of future conditions to assess the potential for aquifer compaction/consolidation.
- ◆ For projects that would result in construction of surface reservoirs and canals a hydrogeological/geotechnical investigation shall be performed by a licensed professional engineer or geologist to identify and quantify the potential for seeps and springs to develop in areas adjacent to the proposed improvements and to propose mitigation measures. Mitigation of such seepage could include, without limitation, additives to concrete that reduce its permeability, construction of impervious liner systems, and design and construction of subdrainage (passive control) or dewatering systems (active control).

Geotechnical investigations and preparation of geotechnical reports shall be performed in the responsible care of California licensed geotechnical professionals including professional civil engineers, certified geotechnical engineers, professional geologists, certified engineering geologists, and certified hydrogeologists, all of whom should be practicing within the current standards of care for such work.

These mitigation measures are commonly employed on a variety of construction projects. In many cases, they reduce significant impacts due to unstable soils to less-than-significant levels. Implementation of

these mitigation measures would provide the information needed to design and construct facilities that should be able to withstand unstable soils. In some cases it will not be feasible to design the facility to withstand such forces due to cost, etc. Moreover, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Delta Stewardship Council. For these reasons, impacts due to unstable geologic units and soils would remain **significant**.

11.5.3.6.4 Mitigation Measure 11-4

The following mitigation measures would reduce the effects of Impact 11-4a, Substantial Soil Erosion or the Loss of Topsoil:

- ♦ Any covered action that would have significant soil erosion and topsoil loss impacts (Impact 11-4) shall incorporate specific measures for future projects that would expand the use of BMPs or optional erosion control measures listed in the SWPPPs. The SWPPP shall identify an effective combination of BMPs to reduce erosion during construction and to prevent erosion during operation. Examples of typical BMPs include:
 - Erosion control measures such as silt fencing, sand bags, straw bales and mats, and rice straw wattles shall be placed to reduce erosion and capture sediment. Straw used for erosion control shall be new cereal grain straw derived from rice, wheat, or barley; free of mold and noxious weed seed; and neither derived from dry-farmed crops nor previously used for stable bedding. Clearance shall be obtained from the County Agricultural Commissioner before straw obtained from outside the county is delivered to the work site. Monitoring requirements of the newly revised General Construction Permit shall be implemented, and more effective BMPs shall be identified and installed if runoff samples indicate excessive turbidity.
 - During construction activities, topsoil shall be removed, stockpiled, and saved for reapplication following completion of construction. The top 6 inches shall be salvaged and reapplied to a comparable thickness. Soil material shall be placed in a manner that minimizes compaction and promotes plant reestablishment.
 - If catch basins are used for sediment capture, the site shall be graded to ensure stormwater runoff flows into the basins, and basins shall be designed for the appropriate storm interval as provided in the General Construction Permit.
 - Temporary work areas shall be surfaced with a compacted layer of well-graded gravel. They may be covered with a thin asphalt binder. Where expansive or compressible soils are present in temporary work areas, construction trailers shall be supported with concrete pads or footings.
 - Dust control shall conform to all federal, State, and local requirements and may include use of water trucks, street sweepers, or other methods described in the SWPPP.
 - Spoils shall be placed in 12-inch-thick loose lifts and compacted to reduce erosion and minimize future subsidence. Placement of peat spoils shall be on agricultural land where possible. Following construction, spoils sites shall be restored to avoid erosion.
- ♦ These mitigation measures are commonly employed on a variety of construction projects. In many cases, they reduce significant soil erosion and topsoil loss impacts to less-than-significant levels. Implementation of these mitigation measures would reduce the potential for soil erosion and loss of topsoil due to project construction activities. In some cases it will not be feasible to prevent significant soil erosion and loss of topsoil due to cost, construction schedule, soil type, and soil behavior. Moreover, as discussed above, with regard to actions taken by other agencies

on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Delta Stewardship Council. For these reasons, construction related soil erosion and loss of topsoil impacts would remain **significant**.

11.5.3.6.5 Mitigation Measure 11-5

The following mitigation measures would reduce the effects of Impact 11-5a, Construction of Projects Could Lead to Impacts Associated with the Presence of Expansive Soils:

- ◆ In areas where expansive clays exist, a hydrogeological/geotechnical investigation shall be performed by a licensed professional engineer or geologist to identify and quantify the potential for expansion, particularly differential expansion of clayey soils due to leakage and saturation beneath new improvements. Measures could include, but are not limited to removal and recompaction of problematic expansive soils, soil stabilization, and/or reinforcement of constructed improvements to resist deformation due to expansion of subsurface soils.
- ◆ These mitigation measures are commonly employed on a variety of construction projects. In many cases, they reduce significant impacts due to expansive soils to less-than-significant levels. Implementation of these mitigation measures would reduce the potential for impacts due to expansive soils. In some cases it will not be feasible to mitigate for expansive soils because of cost, depth of expansive soils, construction schedule, unexpected presence of expansive soils, and project design restrictions. Moreover, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Delta Stewardship Council. For these reasons, potential impacts due to expansive soils would remain **significant**.

11.5.3.6.6 Mitigation Measure 11-6

The following mitigation measures would reduce the effects of Impact 11-6a, Operation of Projects Could Result in Impacts Associated with the Occurrence of Nuisance Water in Adjacent Areas Due to Leakage):

- ◆ For projects that would result in construction of canals, storage reservoirs and other surface impoundments, project design shall provide for protection from leakage to the subsurface. Measures could include, but are not limited to rendering concrete less permeable by specifying concrete additives such as bentonite, design of impermeable liner systems, design of leakage collection and recovery systems, and construction of impermeable subsurface cutoff walls.
- ◆ These mitigation measures are commonly employed on a variety of construction projects. In many cases, they reduce significant nuisance water impacts to less-than-significant levels. Implementation of these mitigation measures would reduce the potential for operation of projects to result in nuisance water in adjacent areas due to leakage. In some cases it will not be feasible to comply with the mitigation measures due to cost constraints. Moreover, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Delta Stewardship Council. For these reasons, impacts associated with nuisance water in adjacent areas due to leakage would remain **significant**.

For Impact 11-6b, the following mitigation measures would apply.

- ◆ For ecosystem restoration projects that might cause subsurface seepage of nuisance water onto adjacent lands:

- Perform seepage monitoring studies by measuring the level of shallow groundwater in the adjacent soils, to evaluate the baseline conditions. Continue monitoring for seepage during and after the project implementation.
- Develop a seepage monitoring plan if subsurface seepage constitutes nuisance water to the adjacent land.
- Implement seepage control measures if adjacent land is not useable, such as installing subsurface agricultural drainage systems to avoid raising water levels into crop root zones. Cutoff walls and pumping wells can also be used to mitigate for the occurrence of subsurface nuisance water.

11.5.3.6.7 Mitigation Measure 11-7

The following mitigation measures would reduce the effects of Impact 11-7a, Exposure of People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Landslides:

- ◆ For projects that would result in construction of levees, surface impoundments and other fill embankments project design shall incorporate fill placement in accordance with local and State regulations and in accordance with the prevailing standards of care for such work. Measures could include, but are not limited to blending of soils most susceptible to landsliding with soils having higher cohesion characteristics, installation of slope stabilization measures, designing top-of-slope berms or v-ditches, terrace drains and other surface runoff control measures, and designing slopes at lower inclinations.
- ◆ These mitigation measures are commonly employed on a variety of construction projects. In many cases, they reduce significant impacts due to landslides to less-than-significant levels. Implementation of these mitigation measures would reduce the potential for risks due to landslides. In some cases it will not be feasible to apply soil or slope improvements due to cost or space constraints. Moreover, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Delta Stewardship Council. For these reasons, impacts due to potential landslides would remain **significant**.

11.5.3.6.8 Mitigation Measure 11-8

The following mitigation measure would reduce the effects of Impact 11-8a, Have Soils Incapable of Adequately Supporting the Use of Septic Tanks or Alternative Waste Water Disposal Systems Where Sewers Are Not Available for the Disposal of Waste Water:

- ◆ A geotechnical investigation shall be performed and a geotechnical report prepared. The geotechnical report shall include a quantitative analysis to determine whether on-site soils would be suitable for an on-site wastewater treatment system. If it is determined that the soil could not support a conventional on-site treatment system, non-conventional systems shall be analyzed. Potential alternative systems include (SWRCB, 2011):
 - Containment systems that do not generate waste
 - Anoxic and anaerobic systems
 - Attached and suspended growth aerobic treatment systems
 - Natural treatment systems
 - Disinfection systems
 - Engineered-fill leach fields

- Monitoring control systems

These mitigation measures are commonly employed on a variety of construction projects. In many cases, they reduce significant wastewater impacts to less-than-significant levels. Implementation of these mitigation measures would reduce the significance of having soils incapable of supporting the use of traditional septic systems where sewers are not available for the disposal of wastewater. In some cases it will not be feasible to provide alternative wastewater disposal systems due to space constraints, lack of a service provider, and/or cost. Moreover, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Delta Stewardship Council. For these reasons, wastewater disposal impacts would remain **significant**.

11.5.3.6.9 Mitigation Measure 11-9

The following mitigation measures would reduce the effects of Impact 11-9a, Substantial Risks to Life or Property Due to Construction of Project Facilities on High Organic Matter Soils:

- ♦ For projects that would result in significant or potentially significant risk to structures due to the presence of highly organic soils, lead agencies shall require geotechnical evaluation prior to construction to identify measures to mitigate organic soils. The following measures may be considered:
 - Over-excavation and import of suitable fill material
 - Structural reinforcement of constructed works to resist deformation
 - Construction of structural supports below the depth of highly organic soils into materials with suitable bearing strength

These mitigation measures are commonly employed on a variety of construction projects. In many cases, they reduce significant impacts due to construction on high organic matter soils to less-than-significant levels. Implementation of these mitigation measures would reduce the potential for impacts due to construction on high organic matter soils. In some cases it will not be feasible to comply with the measures listed above due to cost, lack of proper materials, or design constraints. Moreover, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Delta Stewardship Council. For these reasons, impacts due to high organic matter soils would remain **significant**.

Section 12

Paleontological Resources

12.4.3.6.1 Mitigation Measure 12-1

The following mitigation measure would reduce the effects of Impacts 12-1a, 12-1c, and 12-1d.

- ◆ During the project-level analysis, a Paleontological Resources Monitoring and Recovery Plan (PRMRP) shall be developed and implemented for all actions. The PRMRP shall include protocols for paleontological resources monitoring in those areas where sediment with moderate to high paleontological sensitivity would be affected by construction-related excavations. The PRMRP also shall set forth the following procedures:
 - Confirming the paleontological sensitivity (high, moderate, or low) of the areas to be impacted through review of project-level geological and geotechnical data
 - Determining the qualifications of the paleontologist as established by the Society of Vertebrate Paleontology (SVP 1991, 1995, 1996)
 - The assessment and recovery of discovered fossil resources
 - The preparation and curation of fossil finds

The PRMRP would provide guidelines for the establishment of a yearly or biannual monitoring program led by a qualified paleontologist to determine the extent of fossiliferous sediment being exposed and affected by erosion, and determine whether paleontological resources are being lost. If loss of scientifically significant paleontological resources can be documented, then a recovery program should be implemented.

Implementation of Mitigation Measures 12-1 has the ability to reduce impacts associated with projects to a less-than-significant level in all foreseeable cases if implemented, as evidenced (by analogy) by the reference EIRs/EISs mentioned above in the impact analysis. However, because the Council cannot guarantee mitigation implementation in all cases (particularly for noncovered actions), potential paleontological resource impacts are considered **significant and unavoidable**.

Section 13

Mineral Resources

13.4.3.2.1 Mitigation Measure 13-1

The following mitigation measures would reduce the effects of Impact 13-1, Loss of Availability of a Known Mineral Resource that Would Be of Value to the Region and Residents of the State:

- ◆ Ensure land use compatibility between existing mineral resource extraction activities and projects, activities or actions that may be implemented as the result of the Proposed Project.
- ◆ Maintain adequate buffer between future projects and designated MRZ-2 sectors.
- ◆ Explore opportunities to classify and designate new MRZ-2 sectors (e.g., in existing MRZ-3 sectors) to ensure that important mineral resources are conserved and continue to be available for future construction needs.
- ◆ Ensure future land use changes within designated mineral resource extraction areas recognize mineral resource extraction as a compatible use.
- ◆ Limit use of construction aggregate to local sources with sufficient capacity to meet both project and future local development needs, to the extent possible.
- ◆ Use recycled aggregate where possible, to decrease the demand for new aggregate.

In most cases, implementation of these mitigation measures would reduce impacts on mineral resources of statewide and regional importance to a less-than-significant level. In cases where construction demand may exceed the available supply of aggregate, such as construction of large infrastructure projects, it may not be feasible to limit use of aggregate to local sources or use recycled aggregate, and impacts on mineral resources would remain **significant and unavoidable**.

13.4.3.2.2 Mitigation Measure 13-2

The following mitigation measures would reduce the effects of Impact 13-2, Loss of Availability of a Locally-important Mineral Resource Recovery Site Delineated on a Local General Plan, Specific Plan or Other Land Use Plan:

- ◆ Ensure access is maintained to existing, active mineral resource extraction sites both during and after project construction.
- ◆ Implement recommendations identified in Division of Oil, Gas, and Geothermal Resources of the U.S. Geological Survey (DOGGR) construction site well review program (DOC 2007), such as:
 - For all future projects, identify all existing natural gas well sites and oil production facilities within or in close proximity to the project areas.
 - Identify any oil and natural gas well within 100 feet of any navigable body of water or watercourse perennially covered by water or any officially recognized wildlife preserve as a “critical well” (California Code of Regulations, Title 14, Chapter 4, Article 2, Section 1720(a)(2)(B) and (C)). The DOC requires that a “critical well” include more stringent blowout prevention equipment than non-critical wells based on pressure testing and rating.
 - Identify safety measures to prevent unauthorized access to equipment.

- 1 • Include safety shut-down devices on oil and natural gas wells and other equipment, as
2 appropriate.
- 3 • Notify DOC of new oil and natural gas wells or changes in oil and natural gas well operations
4 or physical conditions, receive written approval from DOC of the changes, and receive
5 written notification of DOC's inspection of new or changed equipment. The approvals will be
6 primarily related to the ability to: (1) protect all subsurface hydrocarbons and fresh water, (2)
7 protect the environment, (3) use adequate blowout prevention equipment, and (4) use
8 approved drilling and cementing techniques.
- 9 • If any plugged/abandoned or unrecorded oil and natural gas wells are uncovered during
10 construction, the DOC should be notified, the wells should undergo remedial well plugging
11 actions, and no structures should be constructed over the abandoned oil and natural gas wells.
- 12 • If oil and natural gas wells are under the jurisdiction or a lease from the California State
13 Lands Commission, project proponents should provide additional plans and environmental
14 documentation as required prior to modification of the oil or natural gas wells.

15 In cases where construction would require modifications or abandonment of oil and gas wells in the Delta
16 and Suisun Marsh, such as construction of large infrastructure projects or ecosystem restoration projects,
17 temporary impacts on mineral extraction sites could occur until well modifications are completed or new
18 wells are developed following abandonment. In most cases, implementation of the above mitigation
19 measures would reduce impacts on locally important mineral resources to a **less-than-significant** level.

Section 14

Hazards and Hazardous Materials

14.5.3.6.1 Mitigation Measure 14-1

The hazardous materials that would be used during construction or unearthed during construction present a relatively low public health risk, but could contaminate air quality or surface water or groundwater if a release occurred. Use of BMPs would reduce the potential for the release of construction-related fuels and other hazardous materials to stormwater and receiving waters as discussed in Section 2A, Proposed Project and Alternatives. BMPs prevent sediment and stormwater contamination from spills or leaks, control the amount of runoff from the site, and require proper disposal or recycling of hazardous materials.

The following mitigation measures would reduce the effects of Impacts 14-1a through e, 14-2a through e, and 14-4a through e:

- ◆ Refueling and maintenance of vehicles and equipment to occur only in designated areas that are either bermed or covered with concrete, asphalt, or other impervious surfaces to control potential spills.
- ◆ Refueling of vehicles and equipment to occur only when employees are present.
- ◆ Vehicle and equipment service and maintenance conducted only by authorized personnel.
- ◆ Refueling conducted only with approved pumps, hoses, and nozzles.
- ◆ Catch-pans placed under equipment to catch potential spills during servicing.
- ◆ All disconnected hoses placed in containers to collect residual fuel from the hoses.
- ◆ Vehicle engines shut down during refueling.
- ◆ No smoking, open flames, or welding allowed in refueling or service areas.
- ◆ Refueling performed away from bodies of water to prevent contamination of water in the event of a leak or spill.
- ◆ When refueling is completed, the service truck to leave the project site.
- ◆ Service trucks provided with fire extinguishers and spill containment equipment, such as absorbents.
- ◆ Should a spill contaminate soil, the soil shall be placed in containers and disposed of as appropriate. All containers used to store hazardous materials to be inspected at least once per week for signs of leaking or failure. All maintenance and refueling areas to be inspected monthly. Results of inspections to be recorded in a logbook maintained onsite.
- ◆ Provision of an automatic sprinkler system for indoor hazardous material storage areas.
- ◆ Provision of an exhaust system for indoor hazardous material storage areas.
- ◆ Separation of incompatible materials by isolating them from each other with a noncombustible partition.
- ◆ Spill control in all storage, handling, and dispensing areas.

- ◆ Separate secondary containment for each chemical storage system. The secondary containment is required to hold the entire contents of the tank plus the volume of water for the fire suppression system that could be used for fire protection for a period of 20 minutes in the event of a catastrophic spill.

These types of mitigation measures, in addition to following federal, state and local requirements for hazardous materials, are generally standard. In most cases, they would reduce significant impacts related to hazardous materials to less-than-significant levels.

In the unlikely event of a spill, the spill shall be reported to the appropriate regulatory agencies and contaminated soil shall be cleaned, treated, and/or removed in accordance with regulatory requirements. Small spills shall be contained and cleaned up immediately by trained, onsite personnel. Larger spills shall be reported via emergency phone numbers to obtain help from offsite containment and cleanup crews. All personnel working on the project during the construction phase shall be trained in handling hazardous materials and the dangers associated with hazardous materials. An onsite health and safety person shall be designated to implement health and safety guidelines and to contact emergency response personnel and the local hospital, if necessary.

If there is a large spill from a service or refueling truck, contaminated soil shall be placed into barrels or trucks by service personnel for offsite disposal at an appropriate facility in accordance with law. If a spill involves hazardous materials quantities equal to or greater than the specific Reportable Quantities as required by regulatory agencies (42 gallons for petroleum products), all federal, State, and local reporting requirements shall be followed. In the event of a fire or injury, the local fire department shall be called.

This mitigation measure would reduce the impact due to hazardous materials spills to a less-than-significant level. However, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Council. For these reasons, impacts due to hazardous spills would remain **significant**.

14.5.3.6.2 Mitigation Measure 14-2

The following mitigation measures would reduce the effects of Impacts 14-1a through e, 14-2a through e, and 14-4a through e:

- ◆ To reduce the risk due to increased exposure to materials that could be released during soil disturbance, worker training programs and breathing apparatus shall be provided. Monitoring programs shall be implemented as areas are excavated to determine the potential for exposure to soil organisms or other constituents.
- ◆ To reduce risk to the community due to increased exposure to materials that could be released during soil disturbance, public outreach programs shall be conducted to educate the public of the types of construction activities and risks that could occur. In areas near extreme hazards, such as construction in areas with identified petroleum-product pipelines or soils with high concentrations of petroleum products, warning sirens shall be used at construction sites to immediately notify workers and residents. Emergency procedures shall be included in the education and outreach programs for the workers and the community.

This mitigation measure will likely reduce the impact to sensitive receptors due to hazardous materials releases to a less-than-significant level. However, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Council. For these reasons, impacts to sensitive receptors due to hazardous releases would remain **significant**.

14.5.3.6.3 Mitigation Measure 14-3

The following mitigation measures would reduce the effects of Impacts 14-3a through e:

- ◆ Freshwater habitat management to include water-control-structure management, vegetation management, mosquito predator management, drainage improvements, and other best management practices, and coordination with the DFG and local mosquito and vector control agencies regarding these strategies and specific techniques to help minimize mosquito production.
- ◆ Maintenance of permanent ponds that increase the diversity of waterfowl yet decrease the introduction of vectors through constant circulation of water, vegetation control, and periodic draining of ponds.
- ◆ Tidal management focused on mosquito problems arising from the residual tidal and floodwaters remaining in depressions and cracked ground (SCMAD 2011).
- ◆ Avoidance of ponding in tidal marsh habitat or in areas within the waterside of setback levees. Design of ecosystem restoration areas, waterfowl hunting areas, setback levees, parks, canals, and surface water storage facilities to minimize standing water, or use of other methods such as mosquito fish to reduce mosquito breeding.

These mitigation measures would likely reduce the impacts due to vectors to a less-than-significant level. However, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Council. For these reasons, impacts due to vector increases would remain **significant**.

14.5.3.6.4 Mitigation Measure 14-4

The following mitigation measures would reduce the effects of Impacts 14-4a through e:

- ◆ Avoid creating hazardous wildlife attractants within a distance of 10,000 feet of an Airport Operations Area.
- ◆ Maintain a distance of 5 statute miles between the farthest edge of the Airport Operations Area and hazardous wildlife attractants.

These mitigation measures would likely reduce the impacts of birds creating aircraft safety hazards within the vicinity of an airport to a less-than-significant level. However, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Council. For these reasons, impacts due to impacts of birds creating aircraft safety hazards would remain **significant**.

14.5.3.6.5 Mitigation Measure 14-5

The following mitigation measure would reduce the effects of Impacts 14-6a and c:

- ◆ Prepare and implement a fire management plan to minimize potential for wildland fires

This mitigation measure will likely reduce the exposure of people and structures to wildland fires to a less-than-significant level. However, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Council. For these reasons, exposure of people or structures to wildland fire impact would remain **significant**.

Section 15

Noise

15.5.3.6.1 Mitigation Measure 15-1

The following mitigation measures would reduce the effects of Impact 15-1a through e, Exposure of Sensitive Receptors to Excessive Temporary, Short-Term Noise:

- ◆ Limit the hours of operation at noise-generation sources located near or adjacent to noise-sensitive areas, wherever practicable, to reduce the level of exposure to meet applicable local standards.
- ◆ Locate construction equipment away from sensitive receptors, to the extent feasible, to reduce noise levels below applicable local standards.
- ◆ Maintain construction equipment to manufacturers' recommended specifications, and equip all construction vehicles and equipment with appropriate mufflers and other approved noise-control devices.
- ◆ Limit idling of construction equipment to the extent feasible to reduce the time that noise is emitted.
- ◆ Conduct individual traffic noise analysis of identified haul routes and provide mitigation, such as reduced speed limits, at locations where noise standards cannot be maintained for sensitive receptors.
- ◆ Incorporate use of temporary noise barriers, such as acoustical panel systems, between construction activities and sensitive receptors if it is concluded that they would be effective in reducing noise exposure to sensitive receptors.
- ◆ Near sensitive receptors, avoid or minimize use of construction equipment known to generate high levels of groundborne vibration (for example, pile drivers).

These mitigation measures are commonly employed on a variety of construction projects. In many cases, they reduce significant construction-related noise impacts to less-than-significant levels. Implementation of these mitigation measures would reduce the significance of construction-related noise impacts by limiting construction noise-generating activities to hours when sensitive receptors would not be home or not trying to sleep, locating construction noise-generating activities at a distance sufficient from sensitive receptors for noise to attenuate before reaching the sensitive receptor, operating equipment that generates less noise than equipment that is not well maintained, limiting the duration of noise emissions, and using noise barriers to attenuate noise before it reaches sensitive receptors when construction cannot be moved away from sensitive receptors. In cases when 24-hour construction is required, it is not feasible to relocate construction activities away from sensitive receptors, or noise barriers are not adequate to attenuate noise, construction-related noise impacts would remain **significant**.

15.5.3.6.2 Mitigation Measure 15-2

The following mitigation measures would reduce the effects of Impact 15-2a through e, Temporary and Short-term Exposure of Sensitive Receptors to Excessive Groundborne Vibrations:

- ◆ Conduct a preliminary groundborne vibration analysis report to determine future construction-related groundborne vibration levels based on, but not limited to, a detailed equipment list, hours of operation and distances to sensitive receptors located within 500 feet of project sites.

- ◆ Provided that future groundborne vibration results in significant impacts at sensitive receptors, the following measures shall be implemented:
 - Designate a complaint coordinator and post this person's contact information in a location near construction areas where it is clearly visible to the nearby receptors most likely to be affected. The coordinator will manage complaints and concerns resulting from activities that cause vibrations. The severity of the vibration concern should be assessed by the coordinator and, if necessary, evaluated by a qualified noise and vibration control expert.
 - Vibration monitoring will be conducted before and during vibration generating operations occurring within 100 feet of historic structures. Every attempt will be made to limit construction-generated vibration levels during pile driving and other groundborne noise and vibration-generating activities in the vicinity of the historic structures in accordance with recommendations of the appropriate agency with authority.
 - Adjacent historic features will be covered or temporarily shored, as necessary, for protection from vibrations, in consultation with the appropriate cultural resources authority.
 - Pile driving required within a 50-foot radius of residences will use alternative installation methods where possible (e.g., pile cushioning, jetting, predrilling, cast-in-place systems, resonance-free vibratory pile drivers). This would reduce the number and amplitude of blows required to seat the pile.
 - Pile-driving activities conducted within 285 feet of sensitive receptors will occur during daytime hours to avoid sleep disturbance during evening and nighttime hours.

These mitigation measures are commonly employed on a variety of construction projects. In many cases, they reduce significant construction-related groundborne vibration impacts to less-than-significant levels. Implementation of these mitigation measures would reduce the significance of construction-related vibration impacts by determining whether receptors sensitive to groundborne vibrations (for example, historic structures) are located near the construction activity and, if they are, relocating vibration-emitting activities to a distance sufficient from sensitive receptors for vibrations to attenuate before reaching the sensitive receptor, stopping vibration-generating construction if area residents complain of vibration nuisance, and using alternate construction techniques to completely avoid the generation of groundborne vibrations. In cases when it is not feasible to relocate construction activities away from sensitive receptors, if it is not feasible to stop vibration-generating construction activities after construction has commenced, or alternate construction techniques would cause a project to not be constructed because of severe additional cost relative to the overall cost of the project, construction-related groundborne vibration impacts would remain **significant**.

15.5.3.6.3 Mitigation Measure 15-3

The following mitigation measures would reduce the effects of Impact 15-3a through e, Long-term Exposure of Sensitive Receptors to Excessive Noise from Operations:

- ◆ Identify noise-sensitive receptors in the vicinity of project activities and design projects to minimize exposure of sensitive receptors to long-term, operational noise sources (for example, water pumps) to reduce noise levels below applicable local standards.
- ◆ Conduct a preliminary noise analysis report to determine future operation-related noise and distances to sensitive receptors. Provided that future operation-related noise results in significant at sensitive receptors, incorporate into construction design measures such as a structure encasing the new noise generating infrastructure. Materials (masonry brick, metal shed, wood) used to house the infrastructure will be of solid construction and void of gaps at the ground, roof line, and joints. All vents will include acoustically rated louvers.

- 1 ♦ Locate dog parks no closer than 200 feet from the nearest residential property line and at least
2 75 feet from habitat for noise-sensitive wildlife species.
- 3 ♦ Locate parking lots no closer than 65 feet from the nearest residential property line and at least
4 25 feet from habitat for noise-sensitive wildlife species unless a detailed noise study is conducted
5 that determines that placement of parking lots closer than the distances specified above will not
6 result in noise levels that exceed 67 dBA at the nearest residential property line or 60 dBA from
7 noise-sensitive habitat, or appropriate mitigation measures, including permanent noise barriers,
8 can be incorporated to reduce noise levels to equal the ambient noise level or referenced
9 thresholds for residential property and noise sensitive habitat.
- 10 ♦ Locate playing fields no closer than located at least 125 feet from the nearest residential property
11 line and at least 50 feet from habitat for noise-sensitive wildlife species unless a detailed noise
12 study is conducted that determines that placement of playing fields closer than the distances
13 specified above will not result in noise levels that exceed 67 dBA at the nearest residential
14 property line or 60 dBA from noise-sensitive habitat, or appropriate mitigation measures,
15 including permanent noise barriers, can be incorporated to reduce noise levels to equal the
16 ambient noise level or referenced thresholds for residential property and noise sensitive habitat

17 These mitigation measures are commonly employed on a variety of projects. In many cases, they reduce
18 significant operations-related noise impacts to less-than-significant levels. Implementation of these
19 mitigation measures would reduce the significance of operations-related noise impacts by locating noise-
20 generating facilities or land uses at a distance sufficient from sensitive receptors for noise to attenuate
21 before reaching the sensitive receptor or using construction materials and design features to attenuate
22 noise at the site of operations. In cases when it is not feasible to relocate noise-generating facilities or land
23 uses away from sensitive receptors or the cost of special construction materials or design would prevent a
24 project from being constructed because of severe additional cost relative to the overall cost of the project,
25 operations-related noise impacts would remain **significant**.

Section 16

Population and Housing

16.4.3.6 Mitigation Measures

The following mitigation measure would reduce the effects of Impacts 16-1a through e, Construction and Operations of Projects Could Result in Inducing Substantial Population and Housing Growth in an Area, Either Directly or Indirectly; and 16-2a through e, Displacement of Substantial Numbers of Existing Housing and/or People, Necessitating the Construction of Replacement Housing Elsewhere:

- ◆ Require compliance with applicable local policies and regulations regarding the provision of affordable housing.
- ◆ Construct replacement housing if existing housing will be displaced.

In most cases, implementation of mitigation measures is likely to reduce impacts associated with projects to a **less than significant** level. Future project-specific analyses may develop adequate information to arrive at a different conclusion; however, for purposes of this program-level analysis, there is no available information to indicate that another finding is warranted or supported by substantial evidence.

Section 17

Public Services

17.4.3.6.1 Mitigation Measure 17-1

The following mitigation measures to be implemented by agencies approving Delta enhancement projects that would be encouraged by the Delta Plan would assure the effects of Impact 17-1a through e, Need for New or Physically Altered Governmental Facilities to Maintain Acceptable Service Ratios, Response Times, or Other Performance Objectives for Fire Protection and Emergency Medical Services, Police Protection, Schools, or Libraries, would be less than significant:

- ◆ Establish construction fee schedules by local agencies for the new or modified facilities to fund additional emergency services potentially required during construction. If emergency services are not needed, a portion of the fees could be refunded.
- ◆ Develop worker training programs to reduce construction and operations risks.
- ◆ Develop appropriate emergency access routes and equipment for both land and water access, if applicable (such as in the Delta), that provides for adequate response time. If use of an existing emergency access route becomes limited due to new or modified facilities, additional routes or placement of duplicate equipment on each side of the route limitation could be considered.
- ◆ Develop traffic plans and emergency response plans for construction and operations phases of new facilities.
- ◆ Develop all facilities, including parks and ecosystem restoration areas, in accordance with applicable fire codes and regulations, and with adequate fire equipment access routes, occupancy limitations, and fire-protection equipment.

The above mitigation measures could be applied to assure that public services impacts would be **less than significant**. However, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Council.

Section 18

Recreation

18.4.3.6.1 Mitigation Measure 18-1

The following mitigation measures would reduce the effects of Impacts 18-1a through 18-1e, Impair, Degrade, or Eliminate Recreational Facilities and Activities:

- ◆ If the substantial impairment, degradation, or elimination of recreational facilities occurs, replacement facilities of equal capacity and quality with ongoing funding provided for maintenance of these facilities.

~~New water supply, ecosystem restoration, and water quality facilities shall be located away from existing recreational sites, including historical towns, areas with developed areas to access or view recreational opportunities, and areas with high levels of recreational use, including public and private facilities, State and local parks, State and federal wildlife areas, marinas, and hunting clubs. If significant impacts cannot be avoided, existing facilities shall be relocated within the local area and ongoing funding for maintenance of these facilities shall be provided.~~

- ◆ If degradation or impairment of recreational facilities, settings, and activities occur from implementation of water use efficient practices and water conservation measures at recreational areas, the park and recreation areas shall be redeveloped with drought-tolerant plant materials, water efficient irrigation systems, and synthetic turf substitutes where appropriate, in such a way as to retain recreational facilities and use areas.

- ◆ If the volume of water exported from the Delta declines over multiple years, the lead agencies that implement local water supplies ~~probably would not~~ may be unable to develop a long-term replacement water supply for the south-of-Delta surface water reservoirs with recreation uses. However, if feasible, reservoir storage operations criteria must be modified to increase the minimum amount of emergency stand by storage water that remains in the reservoir to also provide water based recreation. Also, if feasible, water allocations to water users must be modified to provide more surface water in the reservoirs for recreation and provide other water supplies for non-recreation water users. At these sites, Access recreation facilities must be modified (including access facilities, as necessary) to accommodate lower water elevations or more frequent fluctuations in water elevations that could occur more frequently in the Proposed Project than under existing conditions.

~~Ecosystem restoration areas shall be located away from high use recreational sites, if feasible. Design of the restoration areas shall consider methods to maintain access to adjacent areas or recreational areas that would be periodically inundated under restoration. Design of levee modifications to provide for inundation of restored areas also shall consider the possibility of using levee remnants to maintain meander channels that would facilitate recreational opportunities. If significant impacts to marinas, hunting clubs, and other recreational facilities cannot be avoided, the lead agency shall consider relocation of these facilities, if feasible.~~

These mitigation measures are commonly employed on a variety of ~~construction~~ projects. In many cases, they reduce significant recreational impacts to less-than-significant levels. Implementation of these measures would reduce recreational impacts by locating new water supply, ecosystem, and water quality facilities away from existing recreational sites, and by modifying, redeveloping, or replacing existing recreational facilities. In some cases, it will not be feasible to locate new water supply, ecosystem restoration, or water quality facilities away from existing recreational sites. Moreover, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e. activities

that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Delta Stewardship Council. For these reasons, impacts on existing recreation facilities would remain **significant**.

18.4.3.6.2 Mitigation Measure 18-2

The following mitigation measures would reduce the effects of Impacts 18-2a through e, Increase the Use of Existing Recreational Facilities Such That Substantial Physical Deterioration of the Facility Would Occur or Be Accelerated:

- ◆ If substantial temporary or permanent impairment, degradation, or elimination of recreational facilities causes users to be directed towards other existing facilities, lead agencies shall coordinate with impacted public and private recreation providers to direct displaced users to under-utilized recreational facilities.
- ◆ Lead agencies shall provide additional operations and maintenance of existing facilities in order to prevent deterioration of these facilities.
- ◆ If possible, lead agencies shall provide temporary replacement facilities.
- ◆ If the increase in use is temporary, once use is decreased back to existing conditions, degraded facilities shall be rehabilitated or restored.
- ◆ Where impacts to existing facilities are unavoidable, compensate for impacts through mitigation, restoration, or preservation off-site or creation of additional permanent new replacement facilities.

These mitigation measures are commonly employed on a variety of construction projects. In many cases, they reduce significant recreational impacts to less-than-significant levels. Implementation of these measures would reduce recreational impacts by directing displaced users to under-utilized recreational facilities, providing additional operations and maintenance of existing recreational facilities, providing temporary replacement facilities, and, if necessary, restoring, rehabilitating, or replacing existing recreational facilities. In some cases, it will not be feasible to direct displaced users to under-utilized facilities or to provide temporary replacement facilities. Moreover, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e. activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Delta Stewardship Council. For these reasons, impacts on existing recreational facilities would remain **significant**.

18.4.3.6.3 Mitigation Measure 18-3

The following mitigation measures would reduce the effects of Impacts 18-3a through e, Require the Construction or Expansion of Recreational Facilities Which Might Have an Adverse Physical Effect on the Environment:

- ◆ Projects shall be sited in areas that would have minimal adverse physical effect on the environment.
- ◆ Where impacts to the environment are unavoidable, compensate for impacts through mitigation, restoration, or preservation off-site or creation of additional permanent new replacement facilities.

These mitigation measures are commonly employed on a variety of construction projects. In many cases, they reduce significant recreational impacts to less-than-significant levels. Implementation of these measures would reduce recreational impacts by locating projects in such a manner as to minimize adverse physical effects on the environment, and by compensating for unavoidable impacts through mitigation,

1 restoration, or preservation off-site or creation of additional facilities. In some cases, it will not be feasible
2 to avoid adverse physical effects on the environment. Moreover, as discussed above, with regard to
3 actions taken by other agencies on the basis of Delta Plan recommendations (i.e. activities that are not
4 covered actions), the implementation and enforcement of these measures would be within the
5 responsibility and jurisdiction of public agencies other than the Delta Stewardship Council. For these
6 reasons, impacts on recreational facilities would remain **significant**.

Section 19

Transportation, Traffic, and Circulation

19.4.4.6.1 Mitigation Measure 19-1

The following mitigation measures would reduce the effects of Impact 19-1a through e, Construction- and Operations-related Conflict with an Applicable Plan, Ordinance, or Policy Establishing Measures of Effectiveness for the Performance of the Circulation System, Taking into Account All Modes of Transportation:

- ◆ Avoid modifications to federal, State, and county highways, local roadways, and bridges that may reduce vehicle capacity, to the extent feasible.
 - ◆ Develop and implement a traffic control plan to reduce effects of roadway construction activities, including full and partial lane closures, bicycle and pedestrian facility closures, and reduced access to adjacent properties. Minimize lane closures during morning and evening peak hours. Limit lane closures near the affected segment. Reroute bicycle and pedestrian access around the project area. Prevent bicyclists and pedestrians from entering the work area.
 - ◆ As part of the traffic control plan, identify specific project-vehicle access routes that would avoid additional traffic in residential areas or would adversely affect other sensitive land uses, where feasible.
 - ◆ Install roadway status signs at strategic locations in the Delta to inform the public of roadway closures and limits to ingress to/egress from Delta Islands. The signs shall include maps showing the relative locations of road closures and access restrictions to other Delta features.
 - ◆ For project operations that increase traffic, prepare a traffic study. Determine haul routes that would be used. Evaluate the levels of service at affected intersections and road segments during the peak a.m. and peak p.m. periods. Model changes in traffic with project traffic. If the level of service is maintained at levels acceptable to the appropriate agency, then no additional mitigation is required. If project traffic causes an intersection or road segment to perform below the minimum level of service standard, then select an alternate route for project traffic or schedule project trips for non-peak-hour periods. If alternate routes are not feasible, then design and construct facility improvements to intersections or road segments to maintain the acceptable level of service.
 - ◆ During the planning and analysis of site-specific actions, coordinate with Caltrans and/or other local agencies with jurisdiction over transportation system features for the purpose of minimizing impacts on bridges, roadways, culverts, or other features that may be affected. Agencies responsible for constructing and maintaining levees on which a public roadway may be located shall also be consulted to ensure consistency with levee design criteria.
 - ◆ For roads that will be flooded during floodplain operation, prepare and implement vehicular traffic detour planning as necessary. Provide convenient and parallel vehicular traffic detours for routes closed because of inundation. A detour plan shall be prepared and implemented in accordance with current Caltrans Standard Plans and Specifications. (A temporary crossing structure, for example a Bailey Bridge, may be used to maintain circulation and avoid a detour plan.) The detour plan shall be implemented before roadway inundation.
- The detour plan will include an assessment of existing roadway conditions, whether paved or unpaved, and provisions for repair and maintenance if the roadway conditions are substantially

1 degraded from increased use. After the detour route is identified and before flood flows are
2 released that would overtop roads, the condition of the detour road surface will be assessed and
3 documented. The documentation will be submitted to the local agency responsible for
4 maintenance of the road. After the detour is no longer needed, the condition of the road surface
5 will be assessed and documented. The documentation will identify substantial changes in the
6 condition of the road surface, such as potholing or rutting. Repair and maintenance actions
7 needed to restore the road surface to predetour conditions will be identified. In coordination with
8 the local maintenance agency, the repair and maintenance actions may be conducted by the
9 agency conducting the floodplain operation or by the local maintenance agency to be
10 proportionately reimbursed by the flood management authority.

11 The detour plan will prioritize paved roads for use as detour routes. If use of paved roadway
12 detours is not feasible during flood flow road inundation periods, the detour plan will require that
13 visible dust emissions from unpaved detour routes will be limited to the percent opacity indicated
14 by the appropriate air pollution control district. The following dust control measures may be used
15 to stabilize unpaved roadways:

- 16 • Watering
- 17 • Uniform layer of washed gravel
- 18 • Roadmix
- 19 • Paving

20 Any other method that can be demonstrated to the satisfaction of the appropriate air pollution
21 control district that effectively limits visible dust emission to the local percent opacity standard
22 and meets the conditions of a stabilized unpaved road.

- 23 ♦ Traffic impact reports shall be prepared that meet the applicable agencies' standards to assess
24 potential impacts on appropriate street segments and intersections. The traffic impact reports shall
25 identify impacts that exceed the agencies' guidelines for significance and identify appropriate
26 mitigation. Acceptable mitigation measures may include:

- 27 • Turn restrictions
- 28 • Roadway widening to add lanes or shoulders
- 29 • Redesign of freeway on- and off-ramps
- 30 • Median construction/modification to restrict access
- 31 • Flaring of intersections to add turn lanes
- 32 • Provision of passing lanes or turnouts
- 33 • Acceleration and deceleration lanes
- 34 • Removal of obstructions
- 35 • Roundabouts
- 36 • Restriping to add lanes with or without parking removal and restrictions
- 37 • Protected left-turn pockets or free right-turn lanes
- 38 • Parking restrictions, daily or during peak hours
- 39 • Fair share contributions to approved projects identified in the agency's Capital Improvement
40 Plan

- Fair share contributions to traffic signals identified in the agency's traffic signal plan
- ◆ Prepare and implement a waterway traffic control plan to ensure safe and efficient vessel navigation during construction in waterways. The plan shall identify vessel traffic control measures to minimize congestion and navigation hazards to the extent feasible. Construction areas in the waterway will be barricaded or guarded by readily visible barriers or other effective means to warn boaters of their presence and restrict access. Warning devices and signage will be consistent with the California Uniform State Waterway Marking System and effective during nondaylight hours and periods of dense fog.
- ◆ Where temporary partial channel closure is necessary, a temporary channel closure plan shall be developed. The waterway closure plan will identify and implement alternate detour routing and procedures for notifying boaters of construction activities and partial closures, including coordination with the U.S. Coast Guard, local boating organizations and marinas.
- ◆ To the extent feasible, ensure that safe boat access to public launch and docking facilities, businesses, and residences is maintained.
- ◆ Coordinate with transit system operators to establish appropriate alternate transit system routes to be rerouted during construction activities, as appropriate.
- ◆ Boat passage facilities shall be provided as an integral component of operable gate facilities, when feasible. Boat passage facilities shall be designed to provide uninterrupted boat passage when gate are in the "up" position. Floating docks with mooring bits shall be provided along the shoreline on both sides of the boat passage facility for boaters to use while they await passage. Floating barriers will guide boats into the passage facility chambers.
- ◆ Implement a program to provide boater education on procedures for waiting at and using the boat passage facility.
- ◆ Minimize impacts on bicycle and pedestrian circulation where feasible by avoiding impacts, minimizing closure of paths, and providing for temporary or permanent relocation of the facility to the extent feasible. Consult with the appropriate public works department to determine the most feasible alignment for facility relocation.

These mitigation measures are commonly employed on a variety of construction projects. In many cases, they reduce significant construction-related transportation-related impacts to less-than-significant levels. Implementation of these mitigation measures would reduce the significance of traffic impacts by controlling traffic through construction sites during construction and maintaining access through construction sites. These measures provide for a waterway traffic control plan for in-water construction work to ensure safe passage of vessels around project sites similar to traffic control plans for area roads and intersections. The measures mitigate for impacts during project operations by constructing facility improvements, such as left turn lanes, to maintain acceptable levels of service and by rerouting traffic when a levee road may be closed due to flooding from floodplain operations. The mitigation measures minimize impacts on bicycle and pedestrian facilities by replacing facilities that may require removal for project construction.

In cases when road closures or truck traffic cause intersections or road segments to operated below the agency's minimum level of service standard, or when traffic engineering solutions to improve level of service at intersections or road segments are not feasible due to the cost of improvements relative cost of the project as a whole, construction- and operations-related traffic impacts would remain **significant**.

19.4.4.6.2 Mitigation Measure 19-2

The following mitigation measures would reduce the effects of Impact 19-2a through e, Potential Increase in Hazards Related to a Design Feature:

- ◆ Develop and implement a program that will include procedures for routine inspections and emergency facility operation to allow safe navigation should the facility become damaged or malfunction. The program will include the following specific components:
 - Routine inspections and correction procedures to ensure that facility safety features are in good working order.
 - Routine inspections and correction procedures for navigational hazards around facilities, including floating or submerged debris and the formation of shoals.
 - Contingency and emergency operating procedures to address the possibility that a boat colliding with the flow control facilities will damage the facilities or otherwise render them unable to operate as engineered, and provisions to allow safe navigation.

These mitigation measures are commonly employed on a variety of projects that potentially involve hazards to navigation. Implementation of these mitigation measures would reduce, to less-than-significant levels in many cases, navigation hazards related to the design and installation of facilities in waters by routinely inspecting facilities to identify hazards and fixing them. These measures also provide contingency procedures for emergency situations to avoid navigation hazards during emergency work. Navigation hazards cannot be completely eliminated because the bottom of waterways is not always visible and submerged debris can accumulate without being seen; therefore, the potential navigation hazard would remain **significant**.

19.4.4.6.3 Mitigation Measure 19-3

The following mitigation measures would reduce the effects of Impact 19-3a through e, Potential Reduction in Adequate Emergency Access:

- ◆ Coordinate with responsible local agencies to establish appropriate emergency routes during construction activities and before existing emergency routes are reclassified to a nonemergency route use.
- ◆ Phase construction activities, and use multiple routes to and from offsite locations to minimize the daily amount of traffic on individual roadways.
- ◆ Post warnings about the potential presence of slow-moving vehicles.
- ◆ Use traffic-control personnel when appropriate.
- ◆ Place and maintain barriers, and install traffic-control devices necessary for safety, as specified in Caltrans' Manual of Traffic Controls for Construction and Maintenance Work Zones and in accordance with city and county requirements.
- ◆ Notify appropriate emergency service providers of project construction throughout the construction period to ensure that emergency access through construction areas is maintained.

These mitigation measures are commonly employed on a variety of projects. In many cases, they reduce significant construction-related transportation-related impacts to emergency access to less-than-significant levels. Implementation of these mitigation measures would minimize impacts on emergency access through coordination with emergency service providers and maintaining through traffic to the extent practicable. In cases where roadways must be closed completely and provide the only means of emergency access allowing standard response times, there would remain a **significant** impact on

1 emergency access because emergency service response times could exceed the agency's level of service
2 standard.

3 **19.4.4.6.4 Mitigation Measure 19-4**

4 The following mitigation measure would reduce the effects of Impact 19-4a through e, Construction- and
5 Operations-related Conflict with Adopted Policies, Plans, or Programs Regarding Bicycle or Pedestrian
6 Facilities:

- 7 ♦ Implement Mitigation Measure 19-1, above. The portion of the measure that addresses
8 minimizing impacts on bicycle and pedestrian circulation also would apply to Impact 19-4a
9 through e.

10 These mitigation measures are commonly employed on a variety of projects. Implementation of this
11 mitigation measure would reduce, to less-than-significant levels in many cases, conflicts with bicycle and
12 pedestrian facilities planning by (a) minimizing or avoiding temporary closures during construction and
13 (b) replacing facilities that may need to be removed by the project. In cases where relocating bicycle or
14 pedestrian facilities is not feasible because the cost of replacement is prohibitive relative to the overall
15 cost of the project, the project could conflict with bicycle and pedestrian planning and the impact would
16 remain **significant**.

Section 20

Utilities and Service Systems

20.4.3.2.1 Mitigation Measure 20-1

The following mitigation measures would reduce the effects of Impact 20-4:

- ◆ Establish construction debris disposal fee schedules to promote recycling and minimize solid waste.
- ◆ Limit disposal of construction debris and other solid waste at local landfills if the landfills have limited capacity.
- ◆ Dispose of all construction debris at landfills and disposal facilities that are licensed for the type of wastes to be disposed. If the landfills and disposal facilities are not located near future construction sites, include analysis of transportation of solid waste in future environmental documentation for specific projects.
- ◆ Require construction contractors to prepare construction debris management plans and require reuse or recycling of construction debris.
- ◆ Develop project-specific solid waste plans to maximize practices that reduce and recycle solid waste and sludge generated by water, wastewater, and stormwater treatment facilities; and collect, recycle, or compost litter and solid waste generated at new facilities designed for visitor use (such as parks and visitor centers).

This mitigation measure will likely reduce solid waste facility impacts to a less-than-significant level. However, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Delta Stewardship Council. In such cases, this impact could remain **significant and unavoidable**.

20.4.3.2.2 Mitigation Measure 20-2

The following mitigation measures would reduce the effects of Impact 20-6:

- ◆ Relocate or modify existing water, wastewater, and stormwater facilities or electricity transmission systems in a manner that does not affect current operational reliability to existing and projected users.
- ◆ Coordinate utility relocation and modification with utility providers and local agencies to integrate potential other construction projects and minimize disturbance to the communities.
- ◆ Verify utility locations through field surveys and services such as Underground Service Alert.

This mitigation measure will likely reduce potential utility disruption/conflict impacts to a less-than-significant level. However, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Delta Stewardship Council. In such cases, this impact could remain **significant and unavoidable**.

Section 21

Climate Change and Greenhouse Gas Emissions

21.5.3.6.1 Mitigation Measure 21-1: To Be Implemented When Construction and Operations of Projects Could Result in an Increase in GHG Emissions That May Have a Significant Impact on the Environment

The following mitigation strategies should be considered by lead agencies, as applicable, to develop specific mitigation measures for future projects.

Construction

Implement GHG mitigation measures listed in the most recent California Air Pollution Control Officers Association (CAPCOA), BAAQMD, and other air district guidance documents (e.g., CAPCOA 2010, p. 210-232; BAAQMD 2011, p. 8-6). Current versions of such guidance documents list the following for construction:

1. Use alternative fuels for construction equipment.
2. Use electric and hybrid construction equipment.
3. Limit construction equipment idling beyond regulatory requirements.
4. Institute a heavy-duty off-road vehicle plan.
5. Implement a construction vehicle inventory tracking system.
6. Use local building materials ~~of~~ for at least ten percent of total materials.
7. Recycling or reusing at least 50 percent of construction waste or demolition materials.

In addition, the California Attorney General's Office has developed a list of various measures that may reduce GHG emissions at the individual project level. A selected list of those proposed measures that could be applied to DWR projects was appended to the DWR guidance document, titled *Guidance for Quantifying Greenhouse Gas Emissions and Determining the Significance of their Contribution to Global Climate Change for CEQA Purposes* (DWR 2010c, Appendix B). As appropriate, the measures can be included as design features of a project, required as changes to the project, or imposed as mitigation (whether undertaken directly by the project proponent or funded by mitigation fees). The measures are examples; the list is not intended to be exhaustive. The following may serve as BMPs to be considered and implemented (as applicable) during design, construction, operation, and maintenance of project facilities.

Efficiency

1. Design buildings to be energy efficient. Site buildings to take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use.
2. Install efficient lighting and lighting control systems. Use daylight as an integral part of lighting systems in buildings.
3. Install light colored "cool" roofs, cool pavements, and strategically placed shade trees.
4. Install energy efficient heating and cooling systems, appliances and equipment, and control systems.
5. Install light-emitting diodes for street and other outdoor lighting.
6. Limit the hours of operation of outdoor lighting.
7. Provide education on energy efficiency.

1 *Renewable Energy*

- 2 1. Install solar and wind power systems and energy-efficient heating ventilation and air
- 3 conditioning.
- 4 2. Install solar panels over parking areas.
- 5 3. Use combined heat and power in appropriate applications.

6 *Water Conservation and Efficiency*

- 7 1. Create water-efficient landscapes.
- 8 2. Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation
- 9 controls.
- 10 3. Use reclaimed water for landscape irrigation. Install the infrastructure to deliver and use
- 11 reclaimed water.
- 12 4. Design buildings to be water-efficient. Install water-efficient fixtures and appliances.
- 13 5. Restrict watering methods (e.g., prohibit systems that apply water to non-vegetated surfaces) and
- 14 control runoff.
- 15 6. Restrict the use of water for cleaning outdoor surfaces and vehicles.
- 16 7. Implement low-impact development practices that maintain the existing hydrologic character of
- 17 the site to manage stormwater and protect the environment. (Retaining stormwater runoff on-site
- 18 can drastically reduce the need for energy-intensive imported water at the site.)
- 19 8. Devise a comprehensive water conservation strategy appropriate for the project and location. The
- 20 strategy may include many of the specific items listed above, plus other innovative measures that
- 21 are appropriate to the specific project.
- 22 9. Provide education about water conservation.

23 *Solid Waste Measures*

- 24 1. Reuse and recycle construction and demolition waste (including, but not limited to, soil,
- 25 vegetation, concrete, lumber, metal, and cardboard).
- 26 2. Provide interior and exterior storage areas for recyclables and green waste and adequate recycling
- 27 containers located in public areas.
- 28 3. Recover by-product methane to generate electricity.

29 *Transportation and Motor Vehicles*

- 30 1. Limit idling time for commercial vehicles, including delivery and construction vehicles.
- 31 2. Use low or zero-emission vehicles, including construction vehicles.
- 32 3. Institute a heavy-duty off-road vehicle plan and a construction vehicle inventory tracking system
- 33 for construction projects.
- 34 4. Promote ride sharing.
- 35 5. Provide the necessary facilities and infrastructure to encourage the use of low or zero-emission
- 36 vehicles (e.g., electric vehicle charging facilities and conveniently located alternative fueling
- 37 stations).

6. Increase the cost of driving and parking private vehicles by, e.g., imposing tolls and parking fees.
7. Provide shuttle service to public transit/[work sites].
8. Provide information on all options for individuals and businesses to reduce transportation-related emissions.

Carbon Offsets

1. If, after analyzing and requiring all reasonable and feasible on-site mitigation measures for avoiding or reducing greenhouse gas-related impacts, the lead agency determines that additional mitigation is required, the agency may consider additional off-site mitigation. The project proponent could, for example, fund off-site mitigation projects (e.g., alternative energy projects, or energy or water audits for existing projects) that will reduce carbon emissions, conduct an audit of its other existing operations and agree to retrofit, or purchase carbon “credits” from another entity that will undertake mitigation.
2. The topic of offsets can be complicated, and a full discussion is outside the scope of this summary document. Issues that the lead agency should consider include:
 - a. The location of the off-site mitigation. (If the off-site mitigation is far from the project, any additional, non-climate related benefits of the mitigation will be lost to the local community.)
 - b. Whether the emissions reductions from off-site mitigation can be quantified and verified.
 - c. Whether the mitigation ratio should be greater than 1:1 to reflect any uncertainty about the effectiveness of the offset.

SmartWay Truck Efficiency

The strategy involves requiring existing trucks/trailers to be retrofitted with the best available “SmartWay Transport” and/or ARB approved technology. Technologies that reduce GHG emissions from trucks may include devices that reduce aerodynamic drag and rolling resistance. Aerodynamic drag may be reduced using devices such as cab roof fairings, cab side gap fairings, cab side skirts, and on the trailer side, trailer side skirts, gap fairings, and trailer tail. Rolling resistance may be reduced using single wide tires or low-rolling resistance tires and automatic tire inflation systems on both the tractor and the trailer.

Tire Inflation Program

The strategy involves actions to ensure that vehicle tire pressure is maintained to manufacturer specifications.

Blended Cements

The strategy to reduce CO₂ emissions involves the addition of blending materials such as limestone, fly ash, natural pozzolan and/or slag to replace some of the clinker in the production of Portland cement.

Anti-idling Enforcement

The strategy guarantees emission reductions as claimed by increasing compliance with anti-idling rules, thereby reducing the amount of fuel burned through unnecessary idling. Measures may include enhanced field enforcement of anti-idling regulations, increased penalties for violations of anti-idling regulations, and restriction on registrations of heavy-duty diesel vehicles with uncorrected idling violations.

In most cases, compliance with required permits approvals and implementation of mitigation measures would reduce impacts associated with projects to a less-than-significant level and demonstrate consistency with applicable plans. In some cases, construction or operations emissions may exceed the applicable air district significance levels, even with mitigation, and could result in a significant,

unavoidable impact. This situation is most likely to occur during construction of large infrastructure projects, and may be temporary in nature. Emissions of GHG emissions may be cumulatively considerable when more than one project is being constructed or operated at the same time, in the same vicinity, region, or air basin.

Because it is not known whether mitigation measures would reduce the GHG emissions impacts associated with construction and operation of projects to a less-than-significant level, this potential impact is considered **significant** and may be **unavoidable**.

21.5.3.6.2 Mitigation Measure 21-2

The following mitigation measures would reduce the effects of Impacts 21-3a, 21-3c, and 21-3e, Conflict with Operations of Proposed Facilities Due to Climate Change and Sea Level Rise:

- ◆ Prepare a drainage or hydrology and hydraulics study that would assess the need and provide a basis for the design for flood protection of the facilities constructed along waterways. Prepare the study in accordance with applicable standards of Federal Emergency Management Agency (FEMA), USACE, DWR, Central Valley Flood Protection Board, BCDC, as well as the local reclamation districts and flood control agencies and the counties and cities. Design subsequent mitigation measures in accordance with the final study and with the applicable standards of FEMA, USACE, DWR, Central Valley Flood Protection Board, and BCDC.
- ◆ Design intakes/diversions and outfalls to be operated at multiple surface water elevations between existing conditions and maximum projected surface water elevations during a high flow event with sea level rise for the life of the facility.
- ◆ Prepare a hydrogeologic study that would assess long-term groundwater recharge and safe yield of wells and wellfields under a sustainable groundwater management plan. If the wells can be used to a greater degree in some years in a manner that would support the sustainable groundwater management plan to avoid long-term groundwater overdraft, wells could be drilled to deeper depths than would be required under existing conditions.

These mitigation measures are commonly employed on a variety of projects in which surface water elevations are projected to increase. In many cases, they reduce significant climate change and sea level rise impacts to less-than-significant levels. Implementation of these mitigation measures would reduce the significance of operations-related climate change and sea level rise impacts by site-specific hydrology and hydraulic studies and hydrogeologic studies. In some cases it will not be feasible to fully implement the mitigation measures in a manner that completely eliminates climate change and sea level rise related impacts due to local hydrology and topography. Moreover, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Council. For these reasons, operations-related climate change and sea level rise impacts would remain **significant**.

21.5.3.6.3 Mitigation Measure 21-3

The following mitigation measures would reduce the effects of Impacts 21-3b, Conflict with Operations of Proposed Facilities Due to Climate Change and Sea Level Rise:

- ◆ Prepare a drainage or hydrology and hydraulics study that would assess the need and provide a basis for the design for ecosystem habitat restoration, including adjacent areas that would allow for migration of the habitat to higher elevations as the surface water elevations increase. Prepare the study in accordance with applicable standards of FEMA, USACE, DWR, and BCDC. Design subsequent mitigation measures in accordance with the final study and with the applicable standards of FEMA, USACE, DWR, Central Valley Flood Protection Board, and BCDC.

These mitigation measures are commonly employed on a variety of projects in which surface water elevations are projected to increase. In many cases, they reduce significant climate change and sea level rise impacts to less-than-significant levels. Implementation of these mitigation measures would reduce the significance of operations-related climate change and sea level rise impacts by site-specific hydrology and hydraulic studies. In some cases it will not be feasible to fully implement the mitigation measures in a manner that completely eliminates climate change and sea level rise related impacts due to local hydrology and topography. Moreover, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Council. For these reasons, operations-related climate change and sea level rise impacts would remain **significant**.

21.5.3.6.4 Mitigation Measure 21-4

The following mitigation measures would reduce the effects of Impacts 21-3d, Conflict with Operations of Proposed Facilities Due to Climate Change and Sea Level Rise:

- ◆ Prepare a drainage or hydrology and hydraulics study that would assess the need and provide a basis for the design for projects that reduce risks of floods in the Delta. Prepare the study in accordance with applicable standards of FEMA, USACE, DWR, and BCDC. Design subsequent mitigation measures in accordance with the final study and with the applicable standards of FEMA, USACE, DWR, Central Valley Flood Protection Board, and BCDC.
- ◆ Based on the results of the drainage or hydrologic and hydraulic study, arrange the length of flood management facilities in the direction of the floodplain flow to maximize surface flows under flood conditions.
- ◆ Install setback levees or bypass channels to maintain channel capacity and to mitigate hydraulic impacts of high flow events and higher surface water elevations due to climate change and sea level rise.
- ◆ Channel modifications for restoration actions would be required to be implemented to maintain or improve flood management functions and would be coordinated with the USACE, DWR, Central Valley Flood Protection Board, BCDC, and other flood control agencies to assess the desirability and feasibility for channel modifications. To the extent consistent with floodplain land uses and flood control requirements, if applicable, woody riparian vegetation would be allowed to naturally establish.

These mitigation measures are commonly employed on a variety of projects in which surface water elevations are projected to increase. In many cases, they reduce significant climate change and sea level rise impacts to less-than-significant levels. Implementation of these mitigation measures would reduce the significance of operations-related climate change and sea level rise impacts by site-specific hydrology and hydraulic studies. In some cases it will not be feasible to fully implement the mitigation measures in a manner that completely eliminates climate change and sea level rise related impacts due to hydrology, hydraulics, and topography. Moreover, as discussed above, with regard to actions taken by other agencies on the basis of Delta Plan recommendations (i.e., activities that are not covered actions), the implementation and enforcement of these measures would be within the responsibility and jurisdiction of public agencies other than the Council. For these reasons, operations-related climate change and sea level rise impacts would remain significant.